INDOT
Consultant Prequalification Manual
8/10/2005

Prequalification Definitions, Requirements and Submittal Requirements
For the Consultant Prequalification Process

A. General Prequalification Information

This manual establishes minimum qualification standards by type of work for consultants who seek to provide professional services to the Indiana Department of Transportation (INDOT).

Indiana Code § 8-23-2 empowers the Commissioner of INDOT to enter into contracts for professional services. The Commissioner may enter into contracts for professional services with any qualified person, firm, partnership or association.

Prequalification of professional services consulting firms is one element of INDOT's qualifications based selection process. INDOT will list the minimum level of required prequalification with project notifications for projects that include services for which INDOT prequalifies consultants. Only consultants that are prequalified are eligible to be selected.

B. Prequalification Procedure. NOTE: INDOT reserves the right to deny prequalification based on poor consultant performance.

1. Application A consultant must submit a prequalification package (located at http://www.in.gov/dot/div/contract/pubs/PQ_form.pdf) to INDOT. The prequalification package will include three parts. All firms must complete Part 1 General Information, Part 2 Financial Information (not required for Unit Price Services) and Part 3 Technical Information. All Consultants wishing to submit a letter of interest for a project involving work described in the Prequalification Categories listed below must be prequalified in applicable technical areas.

Once INDOT prequalifies a Consultant, INDOT will randomly assign an initial prequalification expiration date (between 1 and 2 years after initial approval for prequalification).

Consultant must then renew the prequalification every TWO years after the initial prequalification. A consultant may apply for or renew prequalification at least 30 days and no more than 90 days prior to the expiration of an existing prequalification. Consultant shall maintain any licensure or certification upon which INDOT relies for prequalification. Consultant has an affirmative duty to notify INDOT within 15 days of any modifications, suspensions or revocations of the license or certification in accordance with Section B.2.

Submit completed application package to the Prequalification Engineer as follows:

Dan Wampler, Prequalification Engineer
Room N855, IGCN
100 N. Senate Ave.
Indianapolis, IN 46204

2. Modification Consultant shall submit a revised application in the event a change in the status of its firm occurs, including a change of ownership or address, a change in the form of the business entity under which the firm operates, a substantial change in manpower which

affects the firm's qualifications to perform any type of work, laboratories, facilities, etc., changes in financial standing, such as filing for bankruptcy, or any other change which affects an element INDOT considers when initially prequalifying consultants. The Consultant must notify INDOT within 15 days of a modification of its information contained in the Prequalification Package for Professional Consultants, regardless of the Consultant's prequalification expiration. Failure to submit modifications will result in loss of the consultant's prequalification status for a minimum of 3 months to a maximum of 12 months.

3. Overhead Rates Notwithstanding requirements of Sections B.1 and B.2, in order to maintain prequalification, the Consultant shall submit a new certified overhead rate report within 180 calendar days of the end of the Consultant's fiscal year.

4. Binding Requirements Please adhere to the following requirements in submitting one (1) hard copy and one (1) electronic copy of your prequalification package:

a. Provide a minimum of 1½" top margin on all sheets.
b. Page numbers must be centered at the bottom of each page.
c. Use 8½"x11" bond weight paper only.
d. All packages must be top punched, for 2-hole fastening systems, centered, 2¾" center to center of holes.
e. Bind packages by stapling each part with associated exhibits at the upper left hand corner or utilize a 2-hole fastener for each part for very thick proposals.
f. Do not provide tabbed inserts or other features that may interfere with machine copying.
g. CD-ROM in .pdf format (preferable), 1 file per part or .tif format (acceptable)

Packages that do not adhere to these requirements will be returned to the consultant.

C. Prequalification Application Information

A Consultant who desires to qualify with INDOT shall submit a Professional Services Consultant Prequalification Package. This information can be found at http://www.in.gov/dot/div/contract/pubs/PQ_form.pdf**.** The consultant will certify the standard types of work for which the consultant meets the minimum qualification requirements as stated in this manual. INDOT will periodically audit a sampling of qualified consultants to ensure compliance with the qualification requirements, and consultants found to misrepresent their qualifications will be subject to suspension of qualifications with INDOT.

Consultants must file with INDOT a completed Consultant Prequalification Package at least 30 days prior to the posting of the Request for Proposals. INDOT will not consider any Consultant that is not properly qualified.

INDOT will notify consultant of approval or denial of prequalification within 14 calendar days of application.

Consultants will be limited to selection for annual services of no more than 20% of the relevant INDOT office's annual consultant budget. Consultants will also be limited to selection for annual services of no more than 200% of the consultant's annual total wages and salaries.

D. Instructions for PART 1, GENERAL INFORMATION

1. Contracting Entity - Consultant's name as listed with the Indiana Secretary of State and/or the name Consultant uses in Indiana business transactions.

2. Type of Request - A consultant must submit a prequalification application to INDOT initially and renew the prequalification every TWO years. A consultant must notify INDOT within 15 days of a modification of its information contained in the Prequalification Package for Professional Consultants. Failure to submit the information will result in loss of the consultant's prequalification status for a minimum of 3 months to a maximum of 12 months.

3. Contracting Entity Information

3.A – F Provide information as requested

3.G Proof of professional liability insurance by one of the following methods:

Submittal of a current certificate of professional liability insurance from a company or companies authorized to do business in Indiana; or an unequivocal commitment letter from such an insurance company stating that professional liability insurance would be provided to the applicant; or submittal of a commitment letter from a financial institution.

For annual services less than $250,000, a minimum of $250,000 professional liability insurance must be provided. For annual services greater than or equal to $250,000, a minimum of $1,000,000 professional liability insurance must be provided. Additional minimum coverage may be required by specification in the Request For Proposal.

3.H – M Provide information as requested.

4. Minority, Women and Disadvantaged Business Enterprise Programs Information

For contracting entities that are certified as DBE, MBE, or WBE's, copies of certifications must be provided.

Click here for information on the Federal DBE program:
http://osdbu.dot.gov/business/dbe/Whats_DBE_program.cfm

Click here for information on the State of Indiana's MBE and WBE programs:
http://www.in.gov/idoa/minority/index.html

5. Buy Indiana

For information on the Buy Indiana program, see www.buyindiana.in.gov

6. Prequalification Level Requested

a. Annual Services Less Than $250,000 (Self-Certified)

Consultants will provide INDOT with a self-certified overhead audit schedule for the consultants most recent fiscal year and statement(s) describing their accounting system, certified by a principal, in lieu of an audited report and accounting system certification prepared by an independent Certified Public Accountant or cognizant agency. Such report will be in the format specified in INDOT's Overhead Audit Guidelines.

b. Annual Services Equal to or Greater Than $250,000 (CPA Audit)

Consultant will provide INDOT with an indirect cost rate schedule prepared by an independent Certified Public Accountant for the most recent auditable fiscal year. The most recent auditable fiscal year is defined as the one ending more than the previous 180 calendar days. The report should include the following:

i. A statement indicating the existence of an adequate accounting system that meets INDOT's audit requirements, as evidenced by certification in accordance with 48 CFR, Part 31, the Federal Acquisition Regulations, by an independent external auditor (Certified Public Accountant) or cognizant agency, as adequate to support all billings made to INDOT and other clients.

ii. An overhead statement and overhead rate for the most recently completed fiscal year.

iii. A statement that the consultant's method of estimating costs for proposals is consistent with the accounting system.

iv. A statement that the audit was performed in accordance with generally accepted governmental auditing standards, INDOT's Overhead Audit Guidelines, and the Government Auditing Standards, revised June 2003, effective January 1, 2004, published by the U.S. Government Printing Office, which are hereby incorporated by reference.

c. Annual Services of Any Amount (Cognizant Audit)

If the proposed indirect cost rate for the most recent auditable fiscal year is supported by a letter of acceptance from a cognizant agency, and the rate is adjusted to State and Agency regulations and polices, the consultant may qualify for annual services of any amount. The most recent auditable fiscal year is defined as the one ending more than the previous 180 calendar days.

d. Unit Price Services Only

For Unit Price services only, Part 2 Financial Information is not required, however, total wage and salary information for the previous fiscal year will be required to verify INDOT's capacity requirements.

Consultants who have been operating for less than one complete fiscal year, consultants who have reorganized to the extent that the most recent overhead audit does not reflect a currently valid overhead rate, and consultants who have established and operated an accounting system in accordance with the minimum standards provided in INDOT's Overhead Audit

Guidelines, for a period of less than one year, will prepare a projected overhead rate which will be supported by estimated revenues and expenditures for the first fiscal year's operations since organization, reorganization, or implementation of the acceptable accounting system. INDOT shall review the estimate and establish a provisional overhead rate, which at INDOT's sole discretion, may be used in INDOT contracts until the consultant has completed its first fiscal year of operation.

In addition to the Part 2 Financial Information document, the Consultant MUST submit the documents identified at http://www.in.gov/dot/business/design/overhead/index.html for the level of prequalification requested.

7. Offices and Contact Information
   - a. Office Number - Number all offices expected to participate in INDOT work. Do not list temporary or project offices.
   - b-f. Address - Changes in either the primary business address or the invoicing address may be initiated by a letter requesting such a change. Please state if either the business address or the invoicing address is changing or both.
   - g. Number of Employees – List number of employees located at each office.
   - h. Latitude and Longitude – Include coordinates of each office.
   - i-k. Company Contact person – List contact person for INDOT work, title and e-mail address.
   - l-m. Phone and Fax Numbers – List the office phone and fax numbers.

8. Certification - Indicate applicable parts of prequalification package and certify information is true and correct. Signature is required.

E. Instructions for PART 2, FINANCIAL INFORMATION

1. Contacting Entity - Consultant's name as listed with the Indiana Secretary of State and/or the name Consultant uses in Indiana business transactions.

2. Indirect Cost Rate - Provide overhead information. In addition to the financial document, the documents identified at http://www.in.gov/dot/business/design/overhead/index.html must be submitted for the level of prequalification requested.

3. General Accounting Information – Consultant must provide accurate and complete job cost information. It is highly recommended that a computerized accounting program be used.

4. Cost Accounting Information – Consultant must provide manhour tracking methodology.

5. Job Cost Records – Consultant must maintain an accounting system that accurately tracks job costs for every project.

6. Unallowable Indirect Costs – Consultant must be able to identify unallowable costs. Refer to website at http://www.in.gov/dot/business/design/overhead/index.html.

7. Official(s) to Contact Concerning this Statement – Consultant to provide necessary contact information.

8. Certification - Indicate applicable parts of prequalification package and certify information is true and correct. Signature is required.

F. Instructions for PART 3, TECHNICAL INFORMATION

1. Contacting Entity - Consultant's name as listed with the Indiana Secretary of State and/or the name Consultant uses in Indiana business transactions.

2. Types of Work Requested – Consultant must select which type of qualification is requested.

3. Firm Specialty – Consultant must identify areas of special expertise.

4. List of Qualifying Personnel – Consultant must identify all prequalifying personnel by work category. Personnel may be listed in more than one category separately. A person must be employed by only one firm for purposes of prequalification with INDOT.

5. Resumé of Key Person – Must provide necessary experience and qualifications for each key person listed for a particular category.

6. Bridge Design Experience – Provide a number code keyed to the projects described in the individuals' resumés.

7. Certification - Indicate applicable parts of prequalification package and certify information is true and correct. Signature is required.

G. Prequalification Checklist

Consultant Prequalification Part 1 – General Information

- ☐ Exhibit A - Proof of Registration with Indiana Secretary of State (copy of website page will suffice)
- ☐ Exhibit B - Proof of Professional Liability Insurance
- ☐ Exhibit C - List of owners, officers, principals, and partners of the firm
- ☐ Exhibit D - Proof of Indiana Certification as DBE, WBE, or MBE
- ☐ Exhibit E - Additional offices

Consultant Prequalification Part 2 – Financial Information

- ☐ Exhibit F - Certified Overhead Rate Audit Report
- ☐ Exhibit G - Completed Time Sheet
- ☐ Exhibit H - Explanation of costing overtime hours
- ☐ Exhibit I - Job cost report for a current project
- ☐ Exhibit J - Explanation of manual job cost report

☐ Exhibit K - Explanation of job cost changes

Consultant Prequalification Part 3 – Technical Information

☐ Exhibit L – List of Qualifying Personnel
☐ Exhibit M – Resumés and copies of licenses and certifications
☐ Exhibit N – Bridge Design Experience additional sheets

H. Prequalification Categories

INDOT prequalifies consulting engineering firms in the following technical categories:

1.0 SYSTEMS PLANNING
- 1.1 Systems Planning

2.0 TRAFFIC DATA
- 2.1 Traffic Data Collection
- 2.2 Traffic Forecasting

3.0 HIGHWAY TRAFFIC CAPACITY AND OPERATIONS ANALYSIS
- 3.1 Routine and Minor Analysis
- 3.2 Complex or Major Analysis

4.0 HIGHWAY SAFETY ANALYSIS
- 4.1 Routine and Minor Analysis
- 4.2 Complex or Major Analysis

5.0 ENVIRONMENTAL SERVICES
- 5.1 Environmental Document Preparation - EA/EIS
- 5.2 Environmental Document Preparation - CE
- 5.3 Environmental Document Preparation - Section 4(f)
- 5.4 Ecological Surveys
- 5.5 Wetland Mitigation
- 5.6 Waterway Permits
- 5.7 Air Quality Analysis
- 5.8 Noise Analysis and Abatement Design
- 5.9 Archaeological Investigations
- 5.10 History/Architectural Investigations
- 5.11 ESA Screening, Phase I ESA and Phase II ESA, ESA Remedial Design
- 5.12 Karst Studies

6.0 TOPOGRAPHIC SURVEY DATA COLLECTION
- 6.1 Topographic Survey Data Collection

7.0 GEOTECHNICAL ENGINEERING SERVICES
- 7.1 Geotechnical Engineering Services

8.0 ROADWAY

8.1 Non-Complex Roadway Design
8.2 Complex Roadway Design

9.0 BRIDGE DESIGN
9.1 Level 1
9.2 Level 2

10.0 TRAFFIC DESIGN
10.1 Traffic Signal Design
10.2 Traffic Signal System Design
10.3 Complex Roadway Sign Design
10.4 Lighting Design

11.0 RIGHT OF WAY PLAN DEVELOPMENT
11.1 Right of Way Plan Development

12.0 RIGHT OF WAY ACQUISITION SERVICES
12.1 Project Management for Right of Way Acquisition Services
12.2 Title Research
12.3 Value Analysis
12.4 Appraisal
12.5 Appraisal Review
12.6 Negotiation
12.7 Closing
12.8 Relocation
12.9 Relocation Review

13.0 CONTRUCTION INSPECTION (Not Available yet)
13.1 Construction Inspection

14.0 BRIDGE INSPECTION
14.1 Regular Bridge Inspections
14.2 Complex Bridge Inspection
14.3 Underwater/In-water Bridge Inspections
14.4 Small Structure and Miscellaneous Structure Inspections
14.5 Bridge Load Capacity Ratings and Other Bridge Analysis/Testing

I. Prequalification Category Descriptions

1.0 SYSTEMS PLANNING

1.1 Systems Planning

General

Systems planning studies are necessary to provide the highest level of service in terms of safety and mobility on the INDOT transportation system. Systems planning studies provide a variety of professional services in assisting INDOT in making decisions on developing the state infrastructure.

Definition

Studies involving the development of objectives to be met, the identification of existing conditions and potential system deficiencies, the identification of preliminary alternatives and the screening of alternatives based upon the study objectives, the development of recommendations for INDOT action.

Requirements

A consulting firm requesting qualification in this category shall have transportation planning and travel demand forecasting professional staff. Accreditation as a member of the American Institute of Certified Planners is suggested as a standard level for management of systems planning studies.

In addition, the following experience requirements must be documented:

1. Four (4) years experience in the field of transportation planning; or

2. Direct experience developing the analysis for two transportation system planning studies

Submittal Requirements

A resumé documenting compliance with one or more of the above experience requirements. Provide specific projects and relevant experience in those projects where applicable.

2.0 TRAFFIC DATA COLLECTION AND FORECASTING

2.1 Traffic Data Collection

Definition

The ability to perform traffic data collection at designated locations throughout the state. Counts will generally be 48 hours in duration, and may be of axle or vehicle type classification. All counts will be checked for reasonableness and accuracy, and a detailed report of data will be filed with the Agency.

All counts taken will be within the guidelines established the FHWA's Traffic Monitoring Guide, and within full compliance of INDOT's safety regulations and policies. All counting equipment used shall be accurate to the level of precision recommended by the AASHTO guidelines.

Requirements

Education - A Bachelors Degree in mathematics, science or engineering is required.

Qualifying Experience - Three years experience in traffic data collection with a Bachelors degree, or five years experience in traffic data collection. One year of qualifying experience is defined as a year with at least 90% of the time devoted to traffic data collection and reporting.

Qualifying Equipment - Shall be defined as traffic counting devices capable of producing classification counts meeting the FHWA 13 classification scheme. Thirty (30) units of working traffic counting devices will be required for prequalification.

Submittal Requirements

1. A list of personnel for who prequalification is requested

2. Resumés

3. A list of each individual's academic coursework for the Bachelors Degree

4. A document or publication demonstrating the above qualifying experience which was researched and authored by the employee for whom the prequalification is requested. When submitting documents for multiple employees, the submission must indicate which employees prepared the documents.

5. A document or publication demonstrating ownership of the above qualifying equipment which was researched and authored by the employee for whom the prequalification is requested. When submitting documents for multiple employees, the submission must indicate which employees prepared the documents.

2.2 Traffic Forecasting

Definition

The ability to make traffic forecasts, based on traffic data that may be supplied or collected. The forecasts will be used primarily by engineering production. The traffic forecasts will be for various specified periods of time and may be required to include discussions on:

1. The growth factor used in preparing the traffic forecasts

2. Annual Average Daily Traffic (AADT) for the years required

3. Design Hourly Volume (DHV) expressed as a percentage of the AADT in the future year, with A.M and P.M. DHV for urban areas

4. Commercial vehicles expressed as a percentage of the AADT and DHV of the future year

5. Directional distribution of traffic

6. Traffic for build and no build alternatives

7. Assignment of turning movements for intersections

Requirements

Education

1. A Bachelor of Science or Arts Degree in any of the following disciplines: Urban Planning, Engineering, Mathematics, Statistics or Social Science; or a Masters Degree in Planning or Public Administration

2. All candidates shall have at least one 3-hour course in planning and one 3-hour course in statistics.

Qualifying experience – four (4) years with a Masters Degree, five (5) years with a Bachelors Degree, or seven (7) years without a college degree.

One year of qualifying experience is defined as a year with at least 70% of work time devoted to forecasting projects.

Submittal Requirements

1. A list of personnel for who prequalification is requested

2. Resumés

3. A list of each individual's academic coursework related to forecasting, including the requirement for the planning and statistics courses

4. A document or publication demonstrating the above qualifying experience which was researched and authored by the employee for whom the prequalification is requested. When submitting documents for multiple employees, the submission must indicate which employees prepared the documents.

3.0 HIGHWAY TRAFFIC CAPACITY AND OPERATIONS ANALYSIS

Definition

Analysis/assessment of measures of effectiveness with respect to highway and street traffic capacity and traffic operation (level of service, travel speed, density, delay and other performance measures). This principally involves application of methodologies outlined in the Highway Capacity Manual (HCM), by Transportation Research Board, but as well may involve other related means of evaluating the quality of traffic flow and operation.

3.1 Routine and Minor Analysis

Definition

Highway traffic capacity and operations analysis of a small scale and of low to moderate complexity.

Requirements

The consultant requesting prequalification in the field of highway traffic capacity and operations analysis for services of a routine and minor scope will have a staff with the following qualities:

1. At least one (1) person meeting the following criteria:

    a. B.S. in Civil Engineering

    b. Professional Engineer (P.E.)

    c. Two (2) years experience in the field of highway traffic capacity and operations analysis

    d. Professional development (formal training by outside parties) relevant to the field of highway traffic capacity and operations analysis involving, in the specific area of contract services, no less than 16 hours over the past two (2) years

2. And at least one (1) person meeting the following criteria (exceptions would be granted in select cases, specifically services in the class of routine and minor analysis where the scale of work/services is extremely limited):

a. B.S. Civil Engineering, though exceptions would be granted in select cases

b. P.E. preferable and E.I.T. minimum, though exceptions would be granted in select cases

c. One (1) year experience in the field of highway traffic capacity and operations analysis

d. Professional development (formal training by outside parties) relative to the field of highway traffic capacity and operations analysis involving the specific area of contract services no less than 16 hours over the past two (2) years

Submittal Requirements

Detailed description of identified staff's credentials and experience must be submitted. This description shall include specific qualifications and practice in the field of highway traffic capacity and operations analysis, including but not limited to:

1. Academic degrees (year granted and institution), professional registration (type/level and granting authority) and affiliation with professional organizations

2. Past project experiences and particular elements of those experiences in the field of highway traffic capacity and operations analysis

3.2 Complex or Major Analysis

Definition

Highway traffic capacity and operations analysis of a large scale or of high complexity.

Staff Requirements

A consultant requesting qualification in the field of highway traffic capacity and operations analysis for services of a major or complex scope will have a staff with the following qualities:

1. At least two (2) persons meeting the following criteria:

   a. B.S. in Civil Engineering

   b. Professional Engineer (P.E.)

   c. Four (4) years experience in the field of highway traffic capacity and operations analysis

d. Professional development (formal training by outside parties) relevant to the field of highway traffic capacity and operations analysis involving the specific area of contract services with no less than 16 hours over the past two (2) years

2. And at least one (1) person meeting the following criteria (exceptions would be granted in select cases, specifically services in the class of complex or major analysis where the scale of work/services is limited):

   a. B.S. in Civil Engineering, though exceptions would be granted in select cases

   b. P.E. preferable and E.I.T. minimum, though exceptions would be granted in select cases

   c. One (1) year experience in the field of highway traffic capacity and operations analysis

   d. Professional development (formal training by outside parties) relative to the field of highway traffic capacity and operations analysis involving the specific area of contract services no less than 16 hours over the past two (2) years

Submittal Requirements

Detailed description of identified staff's credentials and experience must be submitted. This description shall include specific qualifications and practice in the field of highway traffic capacity and operations analysis, including but not limited to:

1. Academic degrees (year granted and institution), professional registration (type/level and granting authority), and affiliation with professional organizations.

2. Past project experiences and particular elements of those experiences in the field of highway traffic capacity and operations analysis.

4.0 HIGHWAY SAFETY ANALYSIS

Definition

Analysis/assessment of conditions and performance with respect to highway and street (and, in select cases, railroad) operating safety. This form of operations analysis generally involves assessment of crash risk/frequency, cause-effect, countermeasures and other safety-related practices.

4.1 Routine and Minor Analysis

Definition:

Highway safety analysis of a small scale and of low to moderate complexity.

Staff Requirements

The consultant requesting prequalification in the field of highway safety analysis for services of a routine and minor scope will have staff with the following qualities:

1. At least one (1) person meeting the following criteria:

    a. B.S. in Civil Engineering

    b. Professional Engineer (P.E.)

    c. Two (2) years experience in the field of highway safety analysis

    d. Professional development (formal training by outside parties) relevant to the field of highway safety analysis involving the specific area of contract services no less than 16 hours over the past two (2) years

2. And at least one (1) person meeting the following criteria (exceptions would be granted in select cases, specifically services in the class of routine and minor analysis where the scale of work/services is extremely limited):

    a. B.S. in Civil Engineering, though exceptions would be granted in select cases

    b. P.E. preferable and E.I.T. minimum, though exceptions would be granted in select cases

    c. One (1) year experience in the field of highway safety analysis

    d. Professional development (formal training by outside parties) relative to the field of highway safety analysis involving the specific area of contract services no less than 16 hours over the past two (2) years

Submittal Requirements

Detailed description of identified staff's credentials and experience must be submitted. This description shall include specific qualifications and practice in the field of highway safety analysis, including but not limited to:

1. Academic degrees (year granted and institution), professional registration (type/level and granting authority), and affiliation with professional organizations

2. Past project experiences and particular elements of those experiences in the field of highway safety analysis

4.2 Complex or Major Analysis

Definition:

Highway safety analysis of a large scale or of high complexity.

Staff Requirements:

Consulting firm requesting qualification in the field of highway safety analysis for services of a major or complex scope will have staff with the following qualities:

1. At least two (2) persons meeting the following criteria:

    a. B.S. in Civil Engineering

    b. Professional Engineer (P.E.)

    c Four (4) years experience in the field of highway safety analysis

    d Professional development (formal training by outside parties) relative to the field of highway safety analysis involving the specific area of contract services no less than 16 hours over the past two (2) years

2. And at least one (1) person meeting the following criteria (exceptions would be granted in select cases, specifically services in the class of complex or major analysis where the scale of work/services is limited):

    a. B.S. in Civil Engineering, though exceptions would be granted in select cases

    b. P.E. preferable and E.I.T. minimum, though exceptions would be granted in select cases

    c. One (1) year experience in the field of highway safety analysis

    d. Professional development (formal training by outside parties) relative to the field of highway safety analysis involving the specific area of contract services no less than 16 hours over the past two (2) years

Submittal Requirements

Detailed description of identified staff's credentials and experience must be submitted. This description shall include specific qualifications and practice in the field of highway safety analysis, including but not limited to:

1. Academic degrees (year granted and institution), professional registration (type/level and granting authority), and affiliation with professional organizations

2. Past project experiences and particular elements of those experiences in the field of highway safety analysis

5.0 ENVIRONMENTAL SERVICES

General

The preliminary development/engineering phase for transportation projects is described in INDOT's Procedure Manual for Preparing Environmental Studies and Indiana's Streamlining EIS Procedures. National Environmental Policy Act (NEPA) requirements must be met. A complete list of manuals can be found by referencing http://www.in.gov/dot/pubs/manuals/envirStudies/.

Preliminary development/engineering is a dynamic process which begins after a problem is identified in the planning process and described in a Purpose and Need Statement. The goal of the preliminary development/engineering phase is the selection of an appropriate solution to the transportation problem. This solution is then followed through to final environmental clearance. The preliminary development/engineering phase is generally followed by detailed design, construction and operation if the solution involves new construction or rehabilitation of a highway facility.

The process has many parts including impact studies in a number of specialized areas leading to preparation of an environmental document. These areas are identified in the prequalification specifications. Preparation of the environmental document requires synthesis of all the specialty impact study areas. For federal-assisted or regulated projects, the environmental documentation requirements are extensive and spelled out, not just in the INDOT's Procedure Manual for Preparing Environmental Studies, but also in numerous federal and state regulations and laws. These regulations require that an Environmental Assessment (EA) or Environmental Impact Statement (EIS) be prepared unless the project is categorically excluded (CE) from such requirements. This environmental portion of the preliminary development/engineering phase requires careful coordination which is a critical part of the decision making process.

Successful completion of the preliminary development/engineering phase requires integration of many disciplines. The identified primary environmental prequalification areas or categories are:

1. Environmental Document Preparation - EA/EIS
2. Environmental Document Preparation - CE

3. Environmental Document Preparation – Section 4(f)
4. Ecological Surveys
5. Wetland Mitigation
6. Waterway Permits
7. Air Quality Analysis
8. Noise Analysis and Abatement Design
9. Archaeological Studies
10. History/Architectural Investigations
11. ESA Screening, ESA Phase I & II, ESA Remedial Design
12. Karst Studies
13. Threatened and Endangered Species Studies (section not developed yet)
14. Asbestos Investigations (section not developed yet)

These categories have specialized documentation requirements and are a part of the interdisciplinary expertise approach to transportation decision making described in the Environmental Procedural Manual and other INDOT environmental guidelines. Educational and experience requirements are described under each of these prequalification categories; however, all require some familiarity with INDOT guidelines and environmental documentation requirements for 4(f), CE, EA and EIS documents. There are no prequalification requirements for addressing public involvement, social and economic impacts, land use and planning. These are part of the interdisciplinary approach and must be incorporated into the document. Thus, the project manager should have some familiarity with these areas. Although engineering plays a vital role in the project development procedures, it has been determined that use of the engineering prequalification requirements from the roadway design and soils/geotechnical areas will generally suffice and that development of special prequalification requirements for engineering during the preliminary development phase are unnecessary.

Definition

This area of prequalification includes both management of the Preliminary Development/ Engineering Phase of the Project Development Process as defined in the Project Development Process Manual, Environmental Manual and other INDOT guidelines; and, preparation of the environmental document. Consulting firms desiring to function as the prime consultant for the Preliminary Development/Engineering Phase of the Project Development Process must have one or more employees meeting INDOT's prequalification requirements who will act as the project manager or as a key professional, managing critical portions of this process including environmental document preparation. Given the nature of this interdisciplinary approach, it is inappropriate to specify a single discipline or educational background for this prequalification area. The requirements reflect the most appropriate general educational backgrounds but are not exclusive to certain degrees or licenses.

5.1 Environmental Document Preparation – EA / EIS

General

An Environmental Assessment (EA) is a decision document. An EA is prepared to enable the agency to make a decision as to whether the project requires preparation of an EIS or has no significant impact to the human environment.

Environmental Impact Statements (EISs) are prepared for major transportation actions that result in significant adverse impacts to the human environment. Coordination with resource agencies and a number of technical environmental studies is expected to be necessary, resulting in the identification of significant adverse impacts, suitable mitigation measures and the preparation of an EIS.

Requirements

1. Education - The firm must have a graduate of a college or university with a bachelor's degree within the field of environmental science, planning, engineering or a closely related field.

2. Qualifying experience - The firm must have an individual who has three years work experience with a Bachelor of Science or Arts degree or two years work experience with a Master of Science or Arts degree in order to have qualifying experience. In addition, the firm must show previous work experience in, at minimum, 3 areas from the following list: (1) INDOT streamlined EIS procedures, (2) INDOT public involvement procedures (current version), (3) exhibit excellent oral and written communication skills, (4) public presentation experience, (5) conflict resolution, (6) group problem solving, (7) work group facilitation, (8) meeting facilitation, (9) website development and content preparation, (10) experience in developing public involvement products such as a project specific newsletter, brochures, website, toll free project phone number and etc.

Qualifying experience shall include work and training having to do with the preparation and coordination of acceptable Environmental Assessments and Environmental Impact Statements or Categorical Exclusions. "Acceptable" means documents that have been formally accepted by INDOT or transportation agencies in other states and FHWA; and, for CEs, must be approved documents with minimum comments or revisions. CEs that require multiple revisions and resubmissions will not be considered acceptable as a prequalified document. Acceptable documents must meet all the requirements for environmental documentation spelled out in the Environmental Manual, FHWA guidance and other applicable Federal and state regulations and laws.

Qualifying experience must also include the following:

1. Project manager must have successfully completed INDOT's NEPA training.

2. a. The project manager or staff member(s) must have specific experience in EA/EIS preparation * or,

b. Project manager or staff member(s) with specific experience in preparation of at least four (4) CEs - these must meet the requirements specified above.

* Only documents approved within the last ten (10) years of prequalification submission will be considered.

Submittal Requirements

A detailed description of each qualified person's education and experience must be submitted. This description shall include the following:

1. Resumé of each project manager and key professional employed by the consultant

2. List of the completed projects, approved by FHWA, on which the employee has been project manager and/or principal author. Examples of two (2) approved EA or EIS documents of which the employee has been a project manager, or at least four (4) CEs which were accepted by INDOT

3. List of CE/EA/EIS documents including identification (county, route and section, Des. No.), client and description of services provided. Submit examples upon request

4. List of other experience with technical writing and/or specific environmental studies prepared

5. Certification of completion of INDOT's NEPA training and appropriate refresher courses

5.2 Environmental Document Preparation - CE

General

Categorical Exclusions are actions which meet the definition contained in 40 CFR 1508.4 and, based on past experience with similar actions, do not involve significant social, economic or environmental impacts. They are actions which:

1. Do not induce significant impacts to planned growth or land use for the area

2. Do not require the relocation of significant numbers of people

3. Do not have a significant impact on any natural, cultural, recreational, historic, or other resource

4. Do not involve significant air, noise, or water quality impacts

5. Do not have significant impacts on travel patterns; or

6. Do not otherwise, either individually or cumulatively, have any significant environmental impacts

Requirements

1. Education - The firm must have a graduate of a college or university with a bachelor's degree within the field of environmental science, planning, engineering or a closely related field.

2. Qualifying Experience - The firm must have an individual who has three years work experience with a Bachelor of Science or Arts degree or two years work experience with a Master of Science or Arts degree in order to have qualifying experience.

Qualifying experience is considered to be work and training having to do with the preparation and coordination of acceptable Categorical Exclusions. "Acceptable" means documents that have been formally accepted by INDOT and must be approved documents with minimum comments or revisions. CEs that require multiple revisions and resubmissions will not be considered acceptable for meeting prequalification requirements. Acceptable documents must meet all the requirements for environmental documentation spelled out in INDOT's Environmental Manual, FHWA guidance and other applicable Federal and state regulations and laws.

Submittal Requirements for CEs

A detailed description of each qualified person's education and experience must be submitted. This description shall include the following:

1. Resumé of each project manager and key professional employed by the consultant

2. List of other experience with technical writing and/or specific environmental studies prepared

3. Completion of INDOT's NEPA training

5.3 Environmental Document Preparation – Section 4(f)

General

Environmental Section 4(f) as defined in 48 U.S.C. 303, 23 U.S.C. 138 and 23 CFR 771.135 documents are prepared for any level of project that affects, or has the potential to affect, a Section 4(f) resource. Section 4(f) documentation may be a Determination of Use of Section 4(f), a Programmatic Section 4(f) Evaluation or an Individual Section 4(f) Evaluation.

Requirements

1. Education - The firm must have a graduate of a college or university with a bachelor's degree within the field of environmental science, planning, engineering or a closely related field.

2. Qualifying Experience - The firm must have an individual who has a Bachelor of Science or Arts degree and three years experience or a Master of Science or Arts degree with two years work experience in order to have qualifying experience.

Qualifying experience is considered to be work and training having to do with the preparation and coordination of acceptable Section 4(f) documents. "Acceptable" means documents have been formally accepted by INDOT and/or FHWA and must be approved documents with minimum comments or revisions. Section 4(f) documents that require multiple revisions and resubmissions will not be considered acceptable for meeting prequalification requirements.

Submittal Requirements

A detailed description of each applicant's education and experience must be submitted. This description should include the following:

1. Resumé of each applicant seeking 4(f) prequalification

2. List of experience with technical writing and/or specific environmental studies prepared by applicant. List of all Section 4(f) documents or documentation prepared by applicant

3. Certification of completion of INDOT"S NEPA training

5.4 Ecological Surveys

General

The areas of ecological prequalification are based upon knowledge of and experience in the performance of ecological surveys (aquatic, terrestrial, wetland delineation) and wetland mitigation and the completion of waterway permits. Consultants should also be familiar with the U.S. Army Corps of Engineers (USACE) 404 permit requirements since much of the identification of resources requiring permits (waters of the United States and "special aquatic sites") will be a part of the ecological survey and will subsequently be used for preparation of the waterway permit application. For wetland delineation work the consultants shall be familiar with and have experience using the current legally accepted USACE Wetlands Delineation Manual (USACE 1987).

Definition

An ecological survey is an ecological analysis of the following major areas: water quality, aquatic ecosystems, endangered species, wetlands and terrestrial ecosystems. For projects

involving instream work, wetlands, or significant amounts of new right of way, literature searches and ecological surveys are performed to inventory the resources in the vicinity of the proposed project. The data is analyzed and an ecological survey report is prepared. This report presents the data, interprets it and predicts impacts based on preliminary project design.

Requirements

Prequalification to perform ecological surveys combines the requirements of aquatic ecology, terrestrial ecology and wetland delineation. A consulting firm requesting prequalification in ecological surveys should have at least one person on staff that meets the requirements of each discipline (may be different individuals for each discipline).

1. Aquatic Ecology

Definition

The ability to identify aquatic organisms, fish and macroinvertebrate communities and understand how they interact with their environment, including a basic knowledge of water chemistry, interpretation of water quality data and familiarity with highway related water quality impacts. For highway projects requiring new right-of-way that impact aquatic ecosystems, this work will include identification of jurisdictional streams, data collection, analysis and impact predictions and will incorporate this information into an ecological survey report. Data collection for each stream studied will include completion of either Indiana Department of Environmental Management's (IDEM) Qualitative Habitat Evaluation Index (QHEI) form or their Headwaters Habitat Evaluation Index (HHEI) form, and Indiana Wetlands Rapid Assessment Protocol (INWRAP) training as appropriate and whichever is applicable.

Requirements

Education - A Bachelor of Science degree in biology, environmental science or natural resources with at least three 3-hour courses from or related to those in the following list: aquatic ecology, limnology fisheries, ichthyology hydrology, aquatic plant taxonomy, aquatic entomology, potamology ***or*** a degree as noted above and a minimum of four years experience in a position including direct responsibility for and participation in conducting surveys for and documenting aquatic fauna and flora.

Qualifying Experience - Three years with a Bachelor's degree or two years with a graduate degree.

Qualifying Experience should include field studies, publications or presentations at a scientific meeting demonstrating:

1. A knowledge of the taxonomy, sampling and/or ecology of freshwater fish or freshwater macroinvertebrates and water quality data collection and interpretation

2. An assessment of the impacts of construction projects on freshwater aquatic life, including mitigation measures

3. A knowledge of Indiana and Federal rare, threatened and endangered species

Submittal Requirements

1. A list of the personnel for who prequalification is requested

2. Resumés

3. A list of each individual's academic coursework related to aquatic ecology

4. A document or publication demonstrating the above noted qualifying experience which was researched and authored by the employee for who prequalification is requested. Submission of a document or publication is not required if employee's resumé includes INDOT-approved ecological survey reports researched and authored by the employee - indicate INDOT projects by county, route, section and Des. No. When submitting documents for multiple employees, the submission must indicate which employees prepared which documents.

2. Terrestrial Ecology

Definition

The ability to identify terrestrial organisms and plant and animal communities and the understanding of how they interact with their environment. For highway projects requiring new right-of-way, the work will include data collection, analysis and impact predictions and incorporation of this information into an ecological survey report.

Requirements

Education - A Bachelor of Science degree in biology, environmental science or natural resources with at least three 3-hour courses from the following list: vertebrate zoology, wildlife management, wildlife ecology, mammalogy, herpetology, ornithology, botany, terrestrial ecology, plant taxonomy, forestry ***or*** a degree as noted above and a minimum of four years experience in a position including direct responsibility for and participation in conducting surveys for and documenting terrestrial flora and fauna.

Qualifying Experience - Three years with a Bachelor's degree or two years with a graduate degree.

Qualifying experience should include field studies, publications or presentations at a scientific meeting demonstrating:

1. A knowledge of the taxonomy, sampling and/or ecology of terrestrial plants and animals

2. An assessment of the impacts of construction projects on terrestrial ecology, including mitigation measures

3. A knowledge of Indiana and Federal rare, threatened and endangered species

Submittal Requirements

1. A list of the personnel for who prequalification is requested

2. Resumés

3. A list of each individual's academic coursework related to terrestrial ecology

4. A document or publication demonstrating the above qualifying experience which was researched and authored by the employee for who prequalification is requested (not required if employee's resumé includes four (4) INDOT-approved ecological survey reports researched and authored by the employee – indicate INDOT projects by county, route, section and Des. No. When submitting documents for multiple employees, the submission must indicate which employees prepared which documents.

3. Wetland Delineation

Definition

The ability to identify and delineate jurisdictional wetlands as defined by the most current U. S. Army Corps of Engineers' (USACE) Wetlands Delineation Manual and isolated wetlands as defined by IDEM's Isolated Wetlands Law.

Requirements

Education - Equivalent to that required for terrestrial or aquatic ecology plus the completion of a recognized wetland delineation training course.

Qualifying experience – Three (3) years with a Bachelor's degree or two (2) years with a graduate degree.

Qualifying experience should include work having to do with the classification, delineation and description of jurisdictional wetlands, including production of the following:

1. Four (4) wetland delineations done in accordance with USACE delineation procedures

2. A field study demonstrating competence in sampling and analytical procedures involving wetlands

3. An assessment involving the prediction of construction impacts upon wetland function. The USACE certification of wetland delineators is presently available for only a few Corps Districts. When available in Indiana, it will be utilized in INDOT's prequalification for wetland delineation.

Submittal Requirements

1. A list of the personnel for who prequalification is requested

2. Resumés

3. A list of each individual's academic coursework in aquatic and/or terrestrial ecology

4. Certificate indicating completion of a wetland delineation training course or equivalent

5. A document or publication (including a wetland delineation formally approved by the USACE or their designated 404 review agency) demonstrating the above qualifying experience which was researched and authored by the employee for whom prequalification is requested (not required if employee's resumé includes INDOT-approved ecological survey reports, including at least one wetland delineation, researched and authored by the employee – indicate INDOT projects by county, route, section and Des. No.). When submitting documents for multiple employees, the submission must indicate which employees prepared which documents. The submission must also state that the delineation was approved by the Corps or their designee and/or must include a copy of the USACE or designee's approval letter.

5.5 Wetland Mitigation

General

Refer to information provided in Section 5.4 Ecological Surveys, General section.

Definition

The location, design, construction, restoration, enhancement, monitoring and maintenance of replacement wetlands.

Requirements

The consultant requesting prequalification to perform wetland mitigation work shall be prequalified to perform ecological surveys and shall have at least one individual on permanent staff that has designed at least four (4) successful wetland mitigation projects. A successful mitigation design is a completed set of plans and specifications which have been approved by the USACE or their designee and the project sponsor.

Project notifications requiring prequalification in wetlands mitigation will also normally require prequalification in ecological surveys.

Submittal Requirements

1. A list of the personnel for who prequalification is requested

2. Resumés

3. A completed set of plans and specifications for a wetland mitigation project to demonstrate qualifying experience (not required if employee's resumé includes INDOT-approved wetland mitigation projects - indicate INDOT projects by county, route, section and Des. No.). The plans and specifications must have been approved by the USACE or their designee and must have been prepared by the employee for who prequalification is requested. When submitting sets of plans and specifications for multiple employees, the submission must indicate which employees prepared which sets. The submission must also state that the proposed mitigation was approved by the USACE or their designee and/or must include a copy of the USACE or designee's approval letter.

5.6 Waterway Permits

General

Refer to information provided in Section 5.4 Ecological Surveys, General section.

Definition

The preparation of complete waterway permit applications to obtain the necessary approvals as required by various environmental regulations.

Requirements

The consultant requesting prequalification to perform waterway permitting work shall be prequalified to perform ecological surveys. Prequalification for wetland mitigation work is encouraged but not required for prequalification on waterway permits.

Staff must have an understanding of environmental regulations involving waterway permits as they pertain to transportation projects in Indiana, including, but not limited to:

1. Clean Water Act (Sections 401 and 404)

2. Rivers and Harbors Act of 1899 (Sections 9 and 10)

3. Indiana Isolated Wetlands Law

At least one individual on permanent staff must have successfully prepared four (4) applications for projects resulting in a formally approved Section 404 Individual Permit from the USACE or their designee and a Section 401 Water Quality Certification from IDEM.

Submittal Requirements

1. A list of personnel for who prequalification is necessary

2. Resumés

3. A description of staff experience with environmental regulations involving waterway permits as they pertain to transportation projects in Indiana

4. A complete set of the applications that were submitted for projects that resulted in receiving a Section 404 Individual Permit from the USACE or their designee and a Section 401 Water Quality Certification from IDEM (not required if employee's resumé includes INDOT-approved waterway permit applications – indicate INDOT projects by county, route, section and Des. No. The applications must accompany a copy of the final permit approval letters.

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5.7 Air Quality Analysis

Definition

An air quality analysis is performed for highway projects where construction causes an increase in traffic sufficient enough to create an impact on the surrounding air quality. The analysis must quantify these impacts for carbon monoxide only in non-attainment areas.

Requirements

A consulting firm requesting prequalification in the area of air quality analysis must have at least one person on staff that meets the following requirements:

Education - The analyst shall have a Bachelor of Science degree in Engineering, Environmental Sciences or Meteorology, including three 3-hour courses relating to Air Quality (i.e., Meteorology, Engineering Principles or Dispersion Modeling); or a Bachelor of Arts degree with course work related to Transportation Planning.

Qualifying Experience - Three years with a Bachelor of Science or Bachelor of Arts degree or two years with a graduate degree (one year if research or dissertation was related to air quality principles).

Qualifying experience should include work associated with air quality principles and modeling techniques and must include the following:

1. Research or documentation which demonstrates a knowledge of air pollution meteorology, dispersion modeling, and engineering principles

2. One year experience in the use of current USEPA and FHWA accepted computer models (i.e., mobile source emissions model and dispersion model) in the assessment of impacts of construction projects on the ambient air quality, including mitigation measures as required by the Clean Air Acts Amendments of 1990

Submittal Requirements

The consultant shall furnish a resumé of the analyst, including a list of pertinent software used and evidence of air quality modeling experience. Submit two examples of modeling documentation upon request.

5.8 Noise Analysis and Abatement Design

Definition

A traffic noise analysis is performed for new highway construction or highway improvement for the following purposes: defining areas of potential noise impacts for each study alternative, evaluating measures to mitigate these impacts, and comparing the various study alternatives on the basis of potential noise impact and associated mitigation costs.

Requirements

A consulting firm requesting prequalification in noise analysis and abatement design shall have at least one person on staff that meets the following requirements:

Education - The analyst shall have a Bachelor of Science degree in Engineering, Environmental Sciences or a Bachelor of Arts degree with course work related to Transportation Planning. (Note: Experience may be substituted for education in exceptional cases if expertise in the area can be proven by written examples of work.)

Qualifying Experience – Two (2) years with a Bachelor of Science or Bachelor of Arts degree or one (1) year with a graduate degree.

Qualifying experience should include work associated with noise impact assessment and modeling techniques and must include the following:

1. Research or documentation which demonstrates a knowledge of noise impact assessment and engineering principles. Attendance of noise impact and assessment courses offered by the FHWA, their agencies, or independent consultants is highly recommended.

2. One year experience or evidence of coursework in the assessment of traffic noise impacts using current noise prediction computer models that incorporate FHWA noise emission factors. FHWA Transportation Noise Model (TNM) or most current FHWA model for

highway noise assessment and FHWA Integrated Noise Model (INM) for airport noise assessment are acceptable models. Experience should also include abatement design as required by 23 CFR 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise".

3. Familiarity with the FHWA Publication "Highway Traffic Noise Analysis and Abatement Policy and Guidance", dated June 1995 or most current edition of this publication

4. Experience in using integrated sound level meters and/or analyzer

Submittal Requirements

Consultant shall furnish a resumé of the analyst, including a list of pertinent software used, a list of noise impact assessment documentation and experience in using monitoring equipment. Submit two examples of noise impact assessment documentation upon request.

5.9 Archaeological Investigations

General

INDOT uses 36 CFR 61 Appendix A and 312 Indiana Administrative Code (IAC) -21-3-4 to evaluate cultural resource firms and their products with respect to minimum staff qualifications and reporting standards for all levels of investigations (Phases I through III). This is done to ensure that project personnel have the training appropriate for the level of work that they are undertaking.

Cultural resource studies and equivalent INDOT scope of services stages are:

1. Literature reviews, records checks, and background studies

2. Phase 1a and 1b field reconnaissance and reports

3. Phase 1c subsurface field reconnaissance and reports

4. Phase II test excavations and reports

5. Phase III mitigation or data recovery excavations and reports

6. Historic American Engineering Record (HAER) and Historic American Buildings Survey (HABS) reports.

Definition

Consulting firms with this prequalification may perform some or all levels of investigation for archaeological resources and must produce acceptable reports for resources in the project area, study area or area of potential effect

Requirements

The consultant requesting prequalification in the area of archaeology must employ at least one person as Principal Investigator, Project Director or Project Manager who meets the following requirements:

1. Demonstrated ability to meet the requirements of 36 CFR 61, Appendix A and 312 IAC 21-3-4. With respect to specializing in historic or prehistoric periods, this need not be the same individual as long as the above condition is met for each period.

2. Demonstrated ability to conduct and complete required levels of acceptable surveys of archaeological work in accordance with Indiana Department of Natural Resources (IDNR) and Division of Historic Preservation and Archaeology (DHPA) guidelines

3. Demonstrated knowledge of FHWA guidelines and regulations relative to archaeological analysis of transportation projects

Submittal Requirements

A detailed description of the background and qualifications of the individuals described as Principal Investigators, Project Directors and Project Managers for the firm. This must be presented in the resumés. The firm should clearly state if the person is performing Principal Investigator, Project Director or Project Manager duties for the firm.

Copies of accepted documents may be required to verify a firm/person has a demonstrated ability to provide an acceptable product.

5.10 Historical/Architectural Investigations

Definition

Consulting firms with this prequalification may perform all levels of investigation for historical/architectural resources and must produce acceptable reports for resources in the project area, study area or area of potential effects, with demonstrated eligibility based on the National Register of Historic Places (NRHP) criteria and guidelines.

Requirements

The consultant requesting prequalification in the area of historical/architectural survey must employ at least one person as Principal Investigator, Project Director or Project Manager who meets the following requirements:

1. Successfully complete the "Section 106/National Register Eligibility" training

2. Demonstrated ability to meet or exceed the Code of Federal Regulations, 36 CFR,

Part 61 in Appendix A in the areas of History and/or Architectural History

3. Demonstrated knowledge of FHWA guidelines and regulations relative to historical/architectural analysis of transportation projects

Submittal Requirements

A detailed description of the background and qualifications of the individuals described as Principal Investigators, Project Directors and Project Managers for the firm. This must be presented in the resumés. The firm should clearly state if the person is performing Principal Investigator, Project Director or Project Manager duties for the firm.

Copies of acceptable documents may be required to verify a firm/person has a demonstrated ability to provide an acceptable product.

5.11 Environmental Site Assessment

General

Environmental Site Assessment (ESA) is the investigative process utilized to determine if a parcel of property has been impacted with hazardous substances and/or petroleum products. The primary purpose of the ESA process is to establish a defense to Comprehensive Environmental Response Compensation and Liability Act (CERCLA) liability and to develop reasonable procedures to manage contaminated properties where they cannot be avoided. ESAs are required when land acquisition is necessary for highway development. ESAs are conducted during the preliminary development phase using INDOT's interim guidelines, Dealing with Hazardous Waste Sites During Project Development.

1. ESA Screening, Phase I ESA and Phase II ESA

Definition

The screening and Phase I ESA are investigations into the current and/or past practices using readily available regulatory data bases as well as historical sources including but not limited to aerial photographs, fire insurance maps, land title records, topographic maps, local (city and/or county) directories, zoning/land use records, etc. to assess the overall likelihood of involvement of hazardous substances and/or petroleum products which may have occurred on a given parcel of land. If the screening or Phase I ESA indicate a significant level of concern with involvement of regulated substances, then a Phase II ESA may be required.

The Phase II ESA is an intrusive investigation in which soil and/or groundwater samples are obtained and analyzed in conformance with Environmental Protection Agency (EPA) protocol, particularly SW-846 methodologies. In some situations non-intrusive test methods will be utilized and may include geophysical surveys such as ground penetrating radar or similar methods.

Requirements

A consulting firm requesting qualification to perform ESA Screening, Phase I ESA and/or Phase II ESA shall have at least one person on staff that meets the following criteria:

Education - The person shall have an Associates Degree, Bachelor of Science Degree or Bachelor of Arts Degree in engineering, chemistry, geology or closely related field.

Qualifying Experience - Three years experience in conducting ESAs (completion of at least two Phase I ESAs and two Phase II ESAs) with a Bachelor's degree; two years with a graduate degree; or ten years with an Associates Degree.

Submittal Requirements

1. A list of the qualified personnel

2. Resumés (and related coursework if applicable) of key personnel including documentation of at least two Phase I ESAs and two Phase II ESAs reports successfully completed

3. One Phase I ESA report and one Phase II ESA report should be submitted for review showing the person was the primary writer/author. Or, if the Phase I and Phase II ESA reports in the list above are INDOT approved, the project name with the county, route and section, including the Des. No. may be provided in place of the reports.

2. ESA Remedial Design

Definition

If INDOT determines that acquisition of a contaminated parcel of land is necessary for highway development, then a remedial design may also be necessary to ensure that contaminated media is remediated and/or managed in a manner which is consistent with the appropriate environmental regulations. In short, remedial design will consist of a set of instructional statements, including any applicable drawings, specifications and pay items of which shall be included in the INDOT construction contract. Remedial design can range from a typical underground storage tank removal to a situation as complicated as a large scale remediation plan (e.g., ground water treatment system).

Requirements

The consultant requesting prequalification to perform remedial design should employ at least one person that meets the following criteria:

1. The employee should be a Registered Professional Engineer or Licensed Professional Geologist in the State of Indiana.

2. The employee should be a Certified Hazardous Materials Manager (CHMM), must be certified by the State Fire Marshall in Underground Storage Tank (UST) remediation and must demonstrate the successful design, implementation, and monitoring of at least three (3) remedial design projects in the past three (3) years.

3. The employee should demonstrate experience in hydrogeology modeling, must have completed the 40 hours Hazardous Waste Operator (HAZWOPER) training course within the last two (2) years, and must have successfully closed at least three (3) sites using Indiana Department of Environmental Management (IDEM) Risk-Integrated System of Closures (RISC), IDEM's Voluntary Remediation Program (VRP) Indiana Code 13-25-5, Resource Conservation and Recovery Act (RCRA) or Comprehensive Environmental Response, Compensation, and Liability Act Superfund sites.

Submittal Requirements

1. A list of the qualified personnel

2. Resumés (and related coursework if applicable) of key personnel including documentation of the above certifications and experience

3. List three (3) remedial design projects completed in the past three (3) years. If the projects were INDOT projects, provide the county, route and section, including the Des. No.

5.12 Karst Studies

Definition

Karst studies are undertaken for the purpose of delineating guidelines for construction of transportation projects in karst regions of the state. The studies include identification and treatment of drainage in karst regions. Karst areas are regions characterized by the presence of limestone or other soluble rocks, where drainage has been largely diverted into subterranean routes. Sinkholes, sinking streams, springs and caves dominate the topography of such areas.

Requirements

A consultant must show experience in karst studies. One way this can be demonstrated is to have undertaken at least one karst study that complies with INDOT Karst Memorandum of Understanding (MOU). INDOT will accept other proof of capability on a case by case basis. This should include demonstrating the ability to identify, study and design treatment of drainage in karst regions related to the construction of transportation projects. The consultant must be able to identify and characterize karst features and their relationships utilizing maps, dye-tracing and/or other geotechnical information to determine subsurface flow of water in the project area and surface drainage patterns of the area. The consultant must demonstrate the ability to calculate estimates of annual pollutant loads from drainage within the right-of-way, including pre-construction, construction and post-construction estimates. The consultant must demonstrate

the ability to design and treat highway runoff to meet the requirements of the monitoring and maintenance plan.

Submittal Requirements

1. A list of the qualified personnel

2. Resumés (and related coursework if applicable) of key personnel including documentation of the above experience

3. List any karst studies completed by the consultant. If the projects were INDOT projects, provide the county, route and section, including the Des. No. Copies of acceptable documents may be required to verify a firm/person has a demonstrated ability to provide an acceptable product.

6.0 TOPOGRAPHIC SURVEY DATA COLLECTION

6.1 Topographic Survey Data Collection

General

Topographic survey data collection provides the designers with the necessary ground and property information to complete the design and right-of-way acquisition for any project. The data is collected, processed and delivered in an electronic format for the designer to use to prepare the planimetrics and the design Triangulated Irregular Network (TIN) models. This is used to define the existing ground information so that the designer can compute quantities and right-of-way requirements. The Location Control Route Survey Plat is also a deliverable with the design survey. This document gives the location of the centerline and its relationship with the existing United States Property Land System (USPLS) land corners, property corners and subdivision corners of interest for the project.

INDOT distinguishes two distinct areas of responsibility when preparing engineering surveys, namely the field survey function and the review function. The consultant's prequalification status is based on the training and experience of the survey consultant.

The surveyor shall be responsible for producing surveys that conform to the following specifications:

1. INDOT's Real Estate Policies and Procedures Manual

2. INDOT's Location and Design Manual

3. INDOT's Location and Design Sample Plan Sheets

4. INDOT's Survey Manual

5. INDOT's Standard Construction Drawings

6. Title 856 of the Indiana Administrative Code (I.A.C.)

7. Project specific Scope of Services requirements

8. Other specifications and manuals as applicable

The survey consultant shall be responsible for collecting all of the data necessary for the design topography and the property information necessary to write the deeds for any additional right-of-way needed. They are also responsible for the preparation of the survey field book and the field portion of the Location Control Survey Route Plat.

Experience as a surveyor or reviewer requires actual hands on field survey. Work in the general oversight of a project or in a strictly managerial capacity does not qualify for field survey or reviewer experience. The field surveyor and survey reviewer cannot be the same individual.

Survey Definition

The survey is based on INDOT or similar standards, includes the performance of courthouse research, the practice of surveying (as defined in IAC Title 865), the performance of survey computations, the plotting of the topography and the preparation of the Location Control Route Survey Plat.

The consultant requesting prequalification in surveying shall have on permanent staff:

1. A field survey crew. The field survey crew shall be under the direct supervision of a Professional Land Surveyor (PLS) registered in the State of Indiana.

2. A Professional Land Surveyor registered in the State of Indiana. The survey must be reviewed by a PLS. The PLS is responsible for signing and sealing all appropriate survey documents.

Requirements

The surveyor shall meet the following requirements:

1. Experience and knowledge in field surveying on projects comprising a combined length of at least one mile. This includes but is not limited to research of deeds, maps, plats, road records, property owners and existing right of way plans of all appropriate agencies, INDOT plan standards, INDOT CADD standards and right of way legal descriptions.

2. Active involvement in field surveying within the past five (5) years.

The reviewer shall meet the following requirements:

1. Professional Land Surveyor registered in the State of Indiana.

2. Two (2) years experience in field surveys on projects. This includes but is not limited to research of deeds, maps, plats, road records and existing right of way plans of all appropriate agencies, as well as preparation of the topography, TIN models and the Location Control Route Survey Plat.

3. Active involvement in field surveying within the past five (5) years.

Submittal Requirements

1. Submit resumés summarizing the surveying experience of the land surveyor and reviewer. All projects listed on the resumé to fulfill prequalification requirements shall highlight the surveyor's or reviewer's direct responsibilities on each project and shall include the county, route, section, Des. No. and year survey was performed.

2. For initial prequalification submittal only, submit a field survey (current within the past five (5) years) prepared by the surveyor and checked by the reviewer (PLS registered in the State of Indiana).

7.0 GEOTECHNICAL ENGINEERING SERVICES

7.1 Geotechnical Engineering Services

Firm Experience

Provide names of relevant road and bridge projects and include brief descriptions of the size and scope of work performed. Include a sample geotechnical report.

Engineering Staff

1. Principals in Charge
   This should include the name of the individual(s) who is (are) responsible for the final review of reports prior to submission. These individuals should have five (5) years experience in geotechnical engineering and be registered PE’s in the State of Indiana. Include the name and title within the company, and a resumé of each individual for consideration for approval.

2. Project Engineers
   All other engineers within the firm who work on INDOT geotechnical reports must have the same experience and also be registered P.E.’s in the State of Indiana. Include the name and title within the company and a resumé. They must receive prior approval from the Chief Geotechnical Engineer prior to submission of reports.

3. Staff Engineers
   Individuals who are full time employees who perform the geotechnical engineering analysis and prepare the reports. Include the names and titles within the company as well as resumés.

Laboratory Facilities

1. Facilities
   All facilities must have the capabilities to perform required tests as described in the Geotechnical Manual, and must pass a one time pre-qualification inspection by INDOT representatives. An AMRL laboratory assessment for equipment and procedures and AMRL proficiency sample program participation is mandatory. The initial INDOT inspection will also inspect for equipment compliance used in determining pH and LOI, high humidity storage facilities and literature availability.

2. Lab Equipment Requirements
   a. Apparatus required to test for Organic Content, Loss on Ignition
      i. Oven: Capable of maintaining 230 degrees +/-9 degrees F (110 +/-5 degrees C).
      ii. Balance: Must meet AASHTO M231, Class C
      iii. Muffle Furnace: Maintains temperature of 883 +/-18degrees F (445 +/- 10 degrees C) and must have a combustion chamber capable of accommodating the designated containers and samples
      iv. Crucibles: Porcelain or nickel crucibles of 30 to 50 ml capacity or Coors Porcelain evaporating dishes approximately 100 mm top diameter and lids for the crucibles
      v. Desiccator: Desiccator of sufficient size to accommodate samples
      vi. Containers: Glass or plastic coated containers
      vii. viii.Surcharge Weights: As listed in Geotechnical Manual, (Exhibit C), must
      Miscellaneous Supplies: Gloves, Tongs, Spatulas.number 25
   b. Apparatus required to test pH
      i. pH meter: list make and model
      ii. Balance: Must meet AASHTO M-231 requirements
      iii. Beakers: 100 ml beakers
   c. High Humidity Room:
      i. Moisture Room must be a minimum of 100 square feet
      ii. Must maintain temperatures of 68 to 72 degrees F., with an 85% relative humidity
   d. Must comply with the following AASHTO and/or ASTM laboratory methods: T 87, T 88, T 89, T 90, T 99, T 100, T 193, T 200, T 208, T 215, T 216, T 233, T 265, T 267, T 296, T 297, T 307, ASTM D 5084, and ASTM D 5333

3. Literature required – Volumes of Specifications
   a. AASHTO: current volume
   b. ASTM: current volume
   c. INDOT: current volume
   d. Thermometers: NIST traceable

Field Staff

1. Drillers and equipment operators
   Drillers who are full time employees and are experienced in all types of geotechnical drilling, sampling and instrument installation are required to operate drilling rigs on all projects. Certain types of geotechnical testing and instrument installation require at least one driller in the company to be a State of Indiana Licensed Well Driller.

2. Field supervisors
   Field supervisors must be full time employees who are assigned to inspect geotechnical drilling operations, log borings, and make responsible engineering decisions in the field. Include the name and title within the company along with resumés.

3. Drill rigs
   Drill rigs must be owned by the company or leased. If leased, INDOT may require proof of lease agreement at any time for inspection. Drill rigs used are required to be equipped with automatic hammers, not catheads. All drilling is to be performed by the applicant company's full time employees, not subcontracted drillers. List manufacturer and types of drilling equipment to be used, and if the drilling equipment is leased, the name of the company leased from should also be submitted.

8.0 ROADWAY DESIGN

General

The following features are encompassed in roadway design: horizontal and vertical alignments, superelevations, intersections, interchanges, pavements, culverts, storm and sanitary sewers, waterlines, erosion control, small retaining walls, traffic barriers, signing, pavement marking, and maintenance of traffic schemes and details, as well as any devices or structures that may be appurtenant to these features. The preparation of right-of-way plans and descriptions are considered to be a part of roadway design. Attendant to the design is the preparation of acceptable plans, reports, feasibility and justification studies, and the performance of all related calculations.

Acceptable plans are considered to be plans that are prepared in the format, and to the level of detail prescribed in the INDOT Design Manual.

8.1 Non-complex Roadway Design

Definition

Projects involving the construction or reconstruction of a road, street, or highway. Typical projects would involve the application of standard highway design principles and practices as not defined under complex roadway design.

Requirements

A consulting firm requesting qualification in this category shall have at least one registered professional engineer on permanent staff that has had responsibility for roadway design on two or more projects that meet the above definition.

Submittal Requirements

Detailed description of the roadway engineer's experience must be submitted. This description shall include the following:

1. Provide specific experience in all aspects of roadway design; namely, horizontal and vertical alignments, superelevation, intersection and/or interchange design, development of culverts, storm and sanitary sewers, waterlines or any other roadway items listed under General above.

2. List two (2) or more projects for which the engineer has had responsibility for the design of the roadway items listed above.

3. For each project stated, list the specific elements of roadway design involved with this project. For example: design/check of horizontal alignment, design of intersection improvement, etc.

8.2 Complex Roadway Design

Definition

Projects involving: (1) a significant length of new highway through an urban area or difficult terrain, (2) intricate geometry (e.g., a freeway-to-freeway interchange), (3) the reconstruction or rehabilitation of a significant length of a multiple-lane highway, or (4) other types of projects with similar degrees of difficulty and required expertise, such as adding travel lanes.

Requirements

A consulting firm requesting qualification in this category shall have at least two (2) registered professional engineers on permanent staff who have each had responsibility for roadway designs that meet one or more of the above definitions.

Submittal Requirements

Same as Non-complex Roadway Design, except:

1. Experience in complex roadway design must be provided for two (2) engineers

2. For each engineer, provide two (2) or more project descriptions that meet the criteria for complex roadway design. Provide specific experience for these items.

9.0 BRIDGE DESIGN

General

INDOT uses two levels to classify firms for their range of bridge design experience and requires the submittal of Level 3 experience to assist INDOT in selection of firms for projects with bridges that exceed the Level 2 definition. A consultant's classification level will be based on the experience of the designers and checkers employed by the firm.

The Indiana Department of Transportation requires that bridge design computations and bridge plans be prepared by an experienced bridge design engineer (the designer) and that all bridge computations are independently verified by an experienced engineer (the checker).

The designer shall be responsible for preparing a design that follows sound engineering practice and conforms to AASHTO, INDOT and other specifications and manuals. The designer shall also be responsible for preparing an accurate and complete set of final bridge construction plans. The checker shall be responsible for ensuring correctness, constructability and completeness of the plans and calculations and adherence to pertinent specifications and manuals. The checker shall perform and prepare a set of separate, independent calculations verifying all stations, dimensions, elevations and estimated quantities.

The checker shall independently check all hand performed structural calculations to assure that the structural theory, design formulae and mathematics used by the designer are correct. The intent is not to produce two separate sets of design calculations. However, for atypical designs, fracture critical components, and situations where the designer's theory is unclear or questionable, the checker shall perform and prepare a set of separate, independent calculations. The checker and designer shall resolve all discrepancies and the final product shall reflect mutual agreement that the design is correct.

The checker shall verify all structural calculations performed by computer analysis by preparing independent input for comparison with the designer's input. The checker shall perform an independent analysis of the output and agree with the designer on the final design.

The designer and the checker must be full time employees of the firm.

Experience as a designer or checker requires actual hands on performance of the calculations and plan development.

9.1 Level 1 Bridge Design

Definition

Consultants with this prequalification may perform design work on the following types of projects:

1. Pre-cast three-sided culverts (> 20’ span)

2. Single span prestressed I-beam bridges on integral end bents

3. Continuous concrete slab bridges on integral end bents and pile capped interior substructures

4. Concrete deck overlay projects

5. Minor rehabilitation work involving concrete patching, deck joint rehabilitation, parapet safety regrading or other structural repairs not requiring design computation

Requirements

The designer shall be a Registered Professional Engineer or an Engineering Intern who has passed the Fundamentals Exam given by the State Board of Registration for Professional Engineers.

The checker shall be a Registered Professional Engineer.

The designer and checker shall each have experience designing or checking a minimum of three (3) bridges of the following types in any combination:

1. Pre-cast three-sided culvert

2. Continuous concrete slab

3. Single-span prestressed I-beam

4. Any Level 2 or 3 structure

Submittal Requirements

1. A table summarizing the design and checking experience of each bridge engineer, utilizing a number code keyed to the projects further described in the bridge engineer’s resumés. Refer to Item 6 Bridge Design Experience in Consultant Prequalification Package Part 3 - Technical Information.

2. A resumé for each bridge engineer that includes project descriptions numbered to correspond to the references in Item 6 Bridge Design Experience in Consultant Prequalification Package Part 3 - Technical Information. The project description shall include the following:

   a. Number code as described in 1 and 2 above

   b. Name of project (county, route, bridge number and intersecting feature)

   c. Type of project (for example: bridge replacement, widening, deck replacement, etc.)

   d. Year designed

   e. Number of spans

   f. Span lengths

   g. Skew

   h. Geometry (curve or tangent)

   i. Note if curved beam

   j. Superstructure type*

   k. Substructure type*- Abutments or end bents and piers

   l. Foundation Type* - Abutments or end bents and piers

   m. List of specific tasks of bridge design or check for which experience is being documented. (Example: design/check abutments, design/check superstructure etc.)

   * Experience in the design of new elements only will be considered.

9.2 Level 2 Bridge Design

Definition

Level 2 bridges consist of structure types requiring the most commonly used design procedures and methods and which have geometrics that are not complicated (tangent alignment with a constant bridge width). Consultants with this prequalification may perform work on the following types of projects:

1. All of the work listed under Level 1

2. Prestressed box beam bridges*

3. Prestressed bulb-tee bridges *

4. Multi-span prestressed I-girder bridges*

5. Single and multi-span rolled beam bridges on tangent alignment with a consistent bridge width*

6. Single and multi-span constant depth welded plate girder bridges on tangent alignment with a constant bridge width*

7. Deck replacements, on tangent or curved alignment with straight stringers

8. Structural repair of Level 1 or Level 2 bridges, including fatigue retrofits

9. Structural capacity upgrade

* Level 2 firms shall be permitted to design any type of substructure

Requirements

The designer shall be a Registered Professional Engineer or an Engineering Intern who has passed the Fundamentals Exam given by the State Board of Registration for Professional Engineers

The checker shall be a Registered Professional Engineer.

In addition to meeting the requirements for Level 1, the designer and checker shall each have experience as a designer or a checker of the following:

1. Bridge Types

    a. Single or multi-span prestressed box beam bridges

    b. Single or multi-span prestressed concrete bulb-tee beams

    c. Multi-span prestressed I-girder bridges

    d. Single or multi-span, composite, constant depth welded plate girder OR single or multi-span, non composite constant depth welded plate girder and single or multi-span composite rolled beam

Note that experience in plate girder design is assumed to provide enough experience to perform rolled beam design. However, experience in rolled beam design alone, without plate girder experience, is insufficient for qualification under Level 2.

2. Substructure Types (Experience in Tee type (hammerhead) piers plus 3 of the 4 remaining substructure types listed is required)

    a. Frame bents

    b. Tee type (hammerhead) pier

    c. Wall type pier

    d. Integral, semi-integral or non-integral end bents

    e. Wall type abutment or 20 feet tall retaining wall

3. Foundation Types (Experience in all of the listed foundation types is required)

    a. Multi-row pile foundation

    b. Drilled shaft foundation

    c. Spread footing foundation

Submittal Requirements

See Level 1 Bridge Design

Level 3 Design Elements

Definition

Level 3 Bridge Design is not a separate prequalification category, but serves as a definition of services that exceed the definition of Level 2 Bridge Design. INDOT utilizes the Level 3 elements listed below as subfactors in requests for consultant services. The Level 3 elements associated with a specific project will be listed with the project notification and INDOT will consider the experience of the project team in designing those specific Level 3 elements.

INDOT requires that Level 3 experience be included in resumés for use in evaluating the experience of project team members listed in letters of interest and technical proposals. Level 3 elements are as follows:

1. Experience in developing practical solutions to layout problems created by complex geometry or construction phasing

2. Composite welded plate girder, rolled beam or box girder bridge on curved alignment with curved stringers requiring an analysis that takes into account the stresses developed in the curved longitudinal members due to non-uniform torsion (lateral flange bending). In all cases, design and analysis calculations are required to document the experience.

3. Fatigue and fracture control in steel bridges, including knowledge of the mechanisms that initiate cracks and cause them to propagate and associated repair methods is required. The intended experience is beyond that involved in performing standard fatigue analyses per AASHTO specifications. Acceptable experience includes any one of the following:

    a. Design of a new fracture critical pier carrying girder.

    b. Any work to repair existing cracks where analysis of the cause of the cracking and the method of repair was proposed by the consultant and accepted by INDOT. Supporting documentation shall include design calculations and plan details.

    c. Design of any new members involving complicated framing where fatigue prone connections were a concern. The consultant shall explain the specific fatigue problems and show how they were resolved. Projects where the solution was given to the consultant by INDOT or another consultant are not acceptable.

4. Haunched girders

5. Steel box girder superstructures

6. Piers over 45 feet tall

7. Three-dimensional finite element analysis

8. Post tensioning applied to an existing main load carrying bridge member

9. Modular expansion joints

10. Thru girder railroad bridges

11. Superstructures utilizing post tensioned segmental construction

12. Steel trusses

13. Moveable bridges

14. Arch bridges

15. Other bridges such as cable stayed, suspension, etc.

10.0 TRAFFIC DESIGN

General

These categories of prequalification are based upon knowledge and experience in the field of traffic design. Consultants must have demonstrated experience in design, specifications and standards. Acceptable plans are considered to be plans that are prepared in the format and to the level of detail prescribed in INDOT's Plan Development Manual and conforming to INDOT's Traffic Design Manual, Manual of Uniform Traffic Control Devices, INDOT's Standards & Specifications, and AASHTO's Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals Manual.

10.1 Traffic Signal Design

Definition

Traffic signal design includes design of isolated actuated signals or a few signals requiring a time base form of coordination with some form of interconnecting cable. This level also includes the addition of signals into an existing coordination system. The design of an extension to an existing typical system would be included in this category.

Requirements

The consultant requesting prequalification in traffic signal design shall have at least one registered professional engineer on staff with a minimum of three (3) years experience in projects that meet the above definition. Such engineer shall have been actively involved in signal design within the past two (2) years.

Submittal Requirements

For each engineer, submit a resumé that includes the following information:

1. Number of years of signal design experience

2. Provide project descriptions and owners of the most recent projects involving traffic signals that have been completed, including evidence of experience in the following:

    a. Capacity analysis of signalized intersections

    b. Data collection, analysis and reports relating to the need for new signal warrant analysis and interconnection or coordination of signals

    c. Traffic signal timing, i.e., vehicle timing, pedestrian timing, timing for pretimed and actuated operation

    d. Design of signal support structures, i.e., simple span, box span, cantilever arm

e. Knowledge of current INDOT accepted traffic signal timing and coordination software

f. Knowledge of traffic control design (interrelationship of traffic signals with other traffic control devices, such as traffic signs, pavement markings and highway lighting)

g. Utility clearance requirements, i.e., overhead and underground

h. Various phasing options, types of controllers, local detection alternatives, interconnection, signal displays and cabling

i. Railroad preemption devices

10.2 Traffic Signal System Design

Traffic signal system design includes a series or network of signals requiring a completely new or a major redesign of a coordinated system. This level would normally involve some form of information feedback to a central control point such as traffic engineering office (or closed loop system) by means of telephone, radio, fiber-optics, etc. This type of coordination system usually utilizes on-street data from detectors to establish what program of cycle length, offsets and splits will be employed. This system is dynamic by virtue of its capability to change or adjust coordination plans to better meet the demands of actual traffic. Sophisticated techniques of communications are sometimes necessary to accommodate not only traffic data, but other systems as well, such as video surveillance or dynamic message signs. The capability to analyze existing and projected traffic conditions and to compare, recommend and justify competing coordination systems and communications based upon the economic pay-back or cost-benefits is also required.

Requirements

The consultant requesting prequalification in traffic signal system design shall have at least one registered professional engineer on staff, also registered as a Professional Traffic Operating Engineer (PTOE), with a minimum of three (3) years experience in design of traffic signals, and had responsibility for the design for a minimum of three (3) projects that meet the definition of traffic signal system design. Such engineers must have been actively involved in signal design within the past two (2) years.

Submittal Requirements

Refer to the submittal requirements for basic traffic signal design, plus the following:

1. Project experience in real-time computer masters, arterial traffic adjusted, grid traffic adjusted, urban traffic control system (U.T.C.S.), off-line vs. on-line timing plan

generation, feedback to control center of malfunctions, distributed vs. central processing, pre-processing, algorithms and software design

2. Project experience in electronic data communications systems, i.e., multiplexing, multipair communication cables, coaxial cable, radio, and fiber optic cable

3. Experience in data collection, analysis and reports related to justification of need for computer based master control systems, economical analysis of competing systems (sample report or study may be submitted in response to this)

10.3 Complex Roadway Sign Design

Definition

Projects involving: (1) a significant length of new highway through an urban area or difficult terrain, (2) intricate roadway geometry (e.g. freeway interchange), (3) the reconstruction or rehabilitation of a significant length of a multiple-lane highway, or (4) other types of projects with similar degrees of difficulty and required expertise in sign design.

Requirements

The consultant requesting prequalification in complex roadway sign design shall have at least one registered professional engineer on staff with a minimum of five (5) years experience in projects that meet the above definition. Such engineer must have been actively involved in sign design within the past three (3) years.

Submittal Requirements

For each engineer, submit a resumé that includes the following information:

1. Number of years of sign design experience

2. Provide project descriptions and names of the owners of the traffic signs that have been completed, including evidence of experience in the following:

    a. Existing sign inventory collection and analysis for proposed sign need
    b. Knowledge of INDOT approved sign sizing software
    c. Design of sign support structures and foundation, i.e, single and double arm cantilevers, box-truss, monotube, tri-chord
    d. Knowledge of support hardware, walkway and lumi-trak
    e. Knowledge of breakaway sign support design
    f. For complex roadway geometry, knowledge of proposed sign based on proposed geometry
    g. Knowledge of traffic control design (interrelationship of traffic signs with other traffic control devices, such as traffic signals, pavement markings, highway lighting and ITS) utility clearance requirements, i.e. overhead and underground

h. Knowledge of clear zone and roadside barriers

10.4 Lighting Design

Definition

Projects requiring highway lighting systems such as isolated intersections, interchange lighting or continuous highway lighting, including all associated electrical design and components. Prepares plans for construction of such systems.

Requirements

The consultant requesting prequalification in complex lighting design shall have at least one (1) lighting designer on permanent staff that has had extensive experience in design and plan preparation for highway lighting projects that meet the above definition, including experience in the project characteristics listed under Item Number 2 of Highway Lighting Design Submittal Requirements.

Submittal Requirements

A detailed description of each lighting engineer or designer's experience must be submitted. List completed or approved highway lighting projects for which the lighting engineer/designer had primary responsibility for design and/or plan preparation. Please provide the requested information in the resumé format shown in Consultant Prequalification Package, Part 3 Technical Information. For each project list the project description, year constructed, project owner/client, and:

1. The lighting designer's responsibilities on the particular project

2. Project characteristics that would illustrate experience in:

    a. Plan preparation

    b. Traffic data collection and warrant analysis

    c. AASHTO Guide for Roadway Lighting, ANSIIES Standard Practice for Roadway Lighting, INDOT Traffic Engineering Manual, INDOT standards & specifications, or similar documents utilized by other state transportation agencies

    d. Experience in lighting design using conventional, median mounted and/or tower lighting for partial, intermediate, full interchange and/or continuous highway lighting

    e. Familiarity with system interrelationships of light source size, luminaire photometric, mounting height and illumination level and uniformity as related to

visibility, safety, energy consumption, economics, traffic control devices and roadway geometry

f. Knowledge of support hardware including poles, bracket arms, towers, lowering devices and foundations

g. Familiarity with electrical codes including national electrical code, national electrical safety code and utility clearance requirements

h. Knowledge of electrical materials, maintenance and construction practices

i. Experience in circuit design including conductor sizing for loading and voltage drop, control equipment, system grounding and fuse protection

j. Knowledge of lighting design software

11.0 RIGHT OF WAY PLAN DEVELOPMENT

11.1 Right of Way Plan Development

General

While right of way plans are a definite, integral part of the roadway construction plans, they are developed as a separate entity and thus require a significant amount of specialized knowledge in both fields of boundary surveying and right of way plan development. A right of way plan provides information that defines the extent of the right of way required in order to construct and maintain a highway. Right of way plans show the information needed to facilitate an accurate appraisal of the proposed taking and serve to expedite the required negotiations leading to the acquisition thereof. In addition, right of way plans serve as official public records documenting that which has been acquired and monumented.

INDOT distinguishes two distinct areas of responsibility when preparing right of way plans and legal descriptions, namely the design function and the review function. A consulting firm's prequalification status will be based on the training and experience of the individual right of way plan consultant and the design plan right of way designer and the right of way plan reviewer consultant.

The right of way plan designer and reviewer shall conform to the following specifications:

1. INDOT's Real Estate Policies and Procedures Manual

2. INDOT's Location and Design Manual

3. INDOT's Location and Design Sample Plan Sheets

4. INDOT's Survey Manual

5. INDOT's Standard Construction Drawings

6. Title 856 of the Indiana Administrative Code (I.A.C.)

7. The 1998 R/W Engineering Manual

8. County Conveyance Standards

9. Project specific Scope of Services requirements

10. Other specifications and manuals as applicable

The right of way plan consultant shall be responsible for staking all right of way, temporary right of way and easements to be acquired by INDOT when requested by INDOT. The right of way consultant is also responsible for preparing the project private sign inventory and the location of any new topographical features not shown on the right of way design plans when the right of way staking is complete. All INDOT right of way staking forms will be completed and submitted to INDOT.

Experience as a right of way plan designer or reviewer requires actual hands on performance of right of way plan development and right of way plan reviews. Work in the general oversight of a project or in a strictly managerial capacity does not qualify for right of way plan designer or right of way plan reviewer experience. The right of way designer and the right of way plan reviewer cannot be the same individual.

Right of Way Plan Development Definition

Right of Way Plan Development based on INDOT standards includes courthouse research and additional field survey (defined in IAC Title 865 1) as approved by INDOT to identify all ownership and interest rights in a property, and the preparation of right of way plans, computations and legal descriptions that include closure checks and right of way parcel plats. These projects could include the acquisition of both non-complex and complex takes including fee takings, perpetual easements, channel easements, temporary takes, etc.

Descriptions of the Right of Way Plan Designer and Reviewer

The consultant requesting prequalification in Right of Way Plan Development shall have on permanent staff:

1. A right of way plan designer shall be under the direct supervision of a Professional Land Surveyor (PLS) registered in the State of Indiana.

2. The right of way plan reviewer MUST be a PLS registered in the State of Indiana and shall be responsible for signing and sealing all appropriate right of way documents.

Requirements

The right of way plan designer shall meet the following requirements:

1. Experience and knowledge in right of way plan development on projects comprising a total of ten (10) or more parcels. This includes but is not limited to research of deeds, maps, plats, road records and existing right of way plans of all appropriate agencies, as well as proposed right of way plan design, right of way computation, INDOT right of way plan standards, INDOT CADD standards, right of way legal description writing and closure checks.

2 Active involvement in right of way plan development within the past five (5) years

3. Successful completion of INDOT's Right of Way Plan Development Training Course

The right of way plan reviewer shall meet the following requirements:

1. Professional land surveyor registered in the State of Indiana

2. Two (2) years experience in developing public right of way plans on projects comprising a total of twenty (20) or more parcels. This includes but is not limited to research of deeds, maps, plats, road records and existing right of way plans of all appropriate agencies, as well as proposed right of way plan design, right of way computation, INDOT right of way plan standards, INDOT CADD standards, right of way legal descriptions, right of way parcel plats and description closure checks.

3. Active involvement in right of way plan development within the past five (5) years

4. Successful completion of INDOT's Right of Way Plan Development Training Course

Submittal Requirements

1. Submit resumés summarizing the right of way plan development experience of the designer and reviewer (PLS registered in the State of Indiana). All projects listed on the resumé shall highlight the designer's or reviewer's direct responsibilities on each project and shall include the following information:

    a. County, Route and Section

    b. INDOT R/W Code Number (INDOT projects) or Job Number

    c. Number of Right of Way parcels

    d. Majority types of takes

e. Year the Right of Way Plans were prepared

2. Submit approved right of way plans (current within the past five (5) years) prepared by the designer and checked by the reviewer (initial prequalification submittal only).

3. Submit county approved legal descriptions (current within the past five (5) years) as prepared in accordance with the above submittal right of way plans that are signed and sealed by the reviewer (initial prequalification submittal only).

12.0 RIGHT OF WAY ACQUISITION SERVICES

General

Prequalification for right of way acquisition services differs from other prequalification requirements in that only prequalified individuals are eligible to provide these services. Therefore, individuals are prequalified to provide services irrespective of employment status - either by a firm or self-employed. Firms will not be prequalified for right of way acquisition services.

Firms may respond to requests for services based on prequalified employees and/or subconsultants.

12.1 Project Management for Right of Way Acquisition Services

Definition

The process of monitoring all aspects of the acquisition process to ensure compliance with all federal and state regulations. Knowledge of and ability to effectively coordinate all phases and disciplines of the right of way acquisition process is required.

Requirements

A project manager must have a thorough working knowledge of 23 and 49 CFR, the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and its amendments (the Uniform Act), and the INDOT's Policy and Procedures Right of Way Manuals dealing with all disciplines of right of way acquisition. A minimum of two (2) years experience working in a supervisory capacity on projects utilizing 23 and 49 CFR and the Uniform Act is required. The project manager must clearly demonstrate past experience in managing complex projects that involve multiple complicated tasks and must show experience as a supervisor and/or manager of a job involving workload identification, assignment of tasks, scheduling performance and monitoring progress of multiple and/or complex real estate parcels. Ability to read, interpret and explain complex highway right of way and construction plans is mandatory.

Submittal Requirements

Applicant shall provide a detailed resumé including:

1. Work history and number of years experience in project management

2. A list of highway projects on which the applicant has performed project management where the Surface Transportation Act and the Uniform Act applied

3. A list of INDOT right of way training courses successfully completed (including location and year), or their equivalent

4. A list of real estate courses successfully completed (including location and year)

5. Any additional information that would be pertinent to project management

12.2 Title Research

Definition

Title research is the process of adequately researching all available records and preparing a Title and Encumbrance Report documenting the research to identify all parties or entities having any ownership interest in the property to be acquired, including an abstract of all pertinent data, legal descriptions, all liens (taxes, mortgages, recorded judgments, etc.), assessments, taxes and any encumbrances against the property.

Requirements

A title abstractor shall have at least one year of prior experience in the research of titles and must be familiar with INDOT's procedures for title and encumbrance reports. The applicant must have experience in public records research and a good working knowledge of the various indices related to records research to document root title in the title report. A title abstractor must be able to understand construction and right of way plans in order to prepare the title and encumbrance reports, since the report reflects the same ownerships and information identified within the plans.

Submittal Requirements

Applicant shall provide:

1. A complete Fee Abstractor Application that at a minimum shall include:

    a. Prior title research experience that demonstrates compliance with the one year title experience requirement

    b. Examples of recent title work containing a minimum twenty (20) year search period

2. The applicant shall subsequently prepare a title report that demonstrates compliance to INDOT's procedures for title reports. The applicant will be given a demonstration title and encumbrance report packet and then will proceed to the appropriate courthouse to do the necessary research to prepare the Title and Encumbrance Report and submit the complete report back to the Abstracting Supervisor. The Title and Encumbrance Report prepared by the title abstractor will be reviewed and rated for compliance to INDOT policies and procedures and the abstractor will be notified of the results.

12.3 Value Analysis

Waiver Valuation Analysis

Definition: Appraisal Waiver; 24.2(a) (33)

The term waiver valuation means the valuation process used and the product produced when the Agency determines that an appraisal is not required, pursuant to 24.102(c) (2) appraisal waiver.

The waiver valuation analysis process is not an appraisal, but a valuation format used by INDOT to establish a Fair Market Value Estimate (FMVE) when an appraisal is unnecessary because the valuation process is uncomplicated and the fair market value is estimated at $10,000 or less, based on a review of available data.

Requirements

The waiver valuation prepared for INDOT must be prepared by individuals knowledgeable of basic appraisal procedure. These individuals must understand INDOT policy and procedures regarding the preparation of the waiver valuation format. Further, they must be able to document satisfactory completion of INDOT's class, Valuation of Simplistic Acquisition, and/or that they have prepared or assisted others in the preparation of waiver valuations that have been approved by INDOT reviewers. INDOT may also give consideration to individuals who have prepared similar formats in other states so long as documentation and references are provided which prove the individual's ability to comply with the conditions for the waiver valuation. A person performing the waiver valuation for INDOT must have the ability to read and understand complex right of way and construction plans.

Submittal Requirements

Applicants shall provide a detailed resumé including:

1. Appraisal experience and any experience in the preparation of a waiver valuation analysis

2. A list of INDOT right of way and appraisal courses completed (including year and location)

3. Samples of waiver valuations (or equivalent) which demonstrate ability to estimate compensation utilizing a waiver valuation analysis format

12.4 Appraisal

Definition of Appraisal: 24.2(a) (3)

The term appraisal means a written statement independently and impartially prepared by a qualified appraiser setting forth an opinion of defined value of an adequately described property as of a specific date, supported by the presentation and analysis of relevant market information.

Requirements

Appraisals prepared for INDOT must be unbiased and supported opinions of value. An appraiser must be familiar with the Department of Transportation, FHWA's Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally-Assisted Programs Final Rule; 49 CFR Part 24.102 and 24.103; the Uniform Standards for Professional Appraisal Practice (USPAP); and the INDOT Appraisal Manual. Appraisals must be prepared on INDOT approved forms. Fee appraisers used by INDOT must be state certified or licensed by the Indiana Professional Licensing Agency. A person performing appraisals for INDOT must have the ability to read and understand complex right of way and construction plans.

Submittal Requirements

Applicants shall provide a detailed resumé including:

1. Appraisal related experience with emphasis on work related to the eminent domain process. Specify number of years of appraisal experience.

2. A list of INDOT right of way and appraisal courses completed (including year and location)

3. Affiliations with professional organizations

4. Types of property appraised and any specialty areas

5. Experience in providing expert appraisal testimony in eminent domain cases

6. Samples of appraisals which demonstrate the ability to estimate compensation utilizing a before and after analysis, i.e. complete self-contained USPAP compliant report

7. A copy of the appraiser's current appraisal certificate or appraisal license issued by the Indiana Professional License Agency

12.5 Appraisal Review

Definition

Review appraisers examine reports of other appraisers to determine if the conclusions presented are consistent with the data reported and are reasonable and compliant with all federal and federally assisted programs rules and regulations, Indiana state laws and the INDOT Appraisal Manual, given the specific facts and data available. The review appraiser is responsible for seeking clarification and/or correction to reports when necessary. The review appraiser will recommend to INDOT if the appraisal under review is believed to be just compensation. A person performing appraisal reviews for INDOT must have the ability to read and understand complex right of way and construction plans.

Requirements

A review appraiser must be a certified general real estate appraiser licensed by the Indiana Professional Licensing Agency. A review appraiser must have five (5) years experience with eminent domain appraisal methodology and must have an expert understanding of the Department of Transportation, FHWA's Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally-Assisted Programs Final Rule; 49 CFR Part 24.102 and 24.103; the Uniform Standards for Professional Appraisal Practice (USPAP); the INDOT Appraisal Manual and the interrelationship of appraisal / appraisal review to the overall acquisition process.

Submittal Requirements

Applicants shall provide a detailed resumé including:

1. Appraisal related experience with emphasis on work related to the eminent domain process. Specify number of years of appraisal experience.

2. A list of INDOT right of way and appraisal courses completed (including year and location)

3. Affiliations with professional organizations

4. Types of property appraised and any specialty areas

5. Experience in providing expert appraisal testimony in eminent domain cases

6. Samples of appraisals which demonstrate the ability to estimate compensation utilizing a before and after analysis report

7. A copy of the appraiser's current appraisal certificate or appraisal license issued by the Indiana Professional License Agency

8. Samples of past appraisal review assignments utilizing either the INDOT review format or a USPAP review format, if any

12.6 Negotiation

Definition

Negotiation is the process of acquiring property rights from owners for the expansion and rehabilitation of the state's highway system. This process of acquisition includes effectively communicating and offering to the owner, in writing, fair and reasonable compensation in compliance with the Uniform Act, Indiana law and INDOT procedures.

Requirements

A negotiator shall have an active Indiana Real Estate Brokers license; or have an active Indiana Real Estate Salespersons license in addition to having the State Right-of-Way Association (SR/WA) designation through the International R/W Association. A negotiator must also pass the INDOT Approved Buyers Exam and must be familiar with the Uniform Act and 49 CFR Part 24. A negotiator shall also have a familiarity with Indiana Code 32-24-1, INDOT's acquisition policies and procedures, highway construction and right of way plans, titles and appraisals.

A negotiator must be able to explain the project, the taking, the impact of the taking to the residue, the acquisition process, the offer, and negotiate in an honest and competent manner with the property owner(s). The negotiator must document all contacts with the owner and treat all property owners fairly with respect and dignity.

Submittal Requirements

Applicant shall provide:

1. A copy of the applicant's current active Indiana Real Estate Broker's license; or Indiana Real Estate Salesperson's license, in addition to a copy of the applicant's SR/WA designation through the International R/W Association

2. A detailed resumé shall include:
   a. Any prior real estate negotiating experience
   b. A list of training courses, to include acquisition courses and other real estate courses. Include locations and year(s) of attendance for all listed training

12.7 Closing

Definition

The act or process of the transfer of property through execution of documentation and distribution of compensation.

Requirements

The closing agent must be familiar with all INDOT forms and procedures regarding right of way methodology.

Submittal Requirements

Applicant shall provide a detailed resumé including:

1. Number of years experience in closing

2. A list of highway projects on which the applicant has performed closing services involving the Surface Transportation Act and the Uniform Act

3. A list of closing training courses successfully completed (including location and year)

12.8 Relocation

Definition

The provision of relocation assistance to eligible persons or businesses that are displaced by highway improvement projects.

Requirements

The ability to interpret and explain the Relocation Assistance Program along with thorough knowledge of 49 CFR, Part 24 is required. Successful completion of INDOT's relocation training courses, or equivalent, is required. Prior relocation experience on highway projects is preferred. Ability to read, interpret and explain complex highway right of way and construction plans is necessary.

Submittal Requirements

Applicant shall provide a detailed resumé including:

1. Number of years experience in relocation assistance

2. A list of projects on which the individual has performed relocation services where 49 CFR, Part 24 applies. Experience on residential and commercial relocation parcels should be specifically identified

3. Copies of INDOT's certificate of training for relocation assistance courses, along with a list of other relocation training courses successfully completed (including location and year) or equivalent

4. A list of real estate courses successfully completed (including location and year)

5. The applicant shall take the Central Office Relocation Exam. A minimum score of 70% is required

12.9 Relocation Review

Definition

Relocation review is the process of reviewing the work performed by the person who is actively carrying out the relocation assistance function. This review is to assure that all relocation is performed in compliance with 49 CFR, Part 24 and INDOT policy and procedures.

Requirements

To be prequalified as a relocation reviewer, a person must first be qualified to perform the relocation function. In addition, a relocation reviewer must have at least five years of extensive experience in relocation which is subject to 49 CFR, Part 24. Experience supervising, reviewing, or correcting relocation work which has been performed by others is preferred.

Submittal Requirements

Applicant shall provide a detailed resumé including:

1. Number of years experience in relocation assistance

2. A list of projects on which the individual has performed relocation services where 49 CFR, Part 24 applied. Experience on residential and commercial relocation parcels should be specifically identified

3. A list of relocation training courses successfully completed (including location and year)

4. A list of projects which the individual supervised, reviewed, or corrected relocation functions which were performed by others

13.0 CONSTRUCTION INSPECTION (Not available yet)

14.0 BRIDGE INSPECTION

General

INDOT is required by federal regulations to conduct routine inspections of all bridges on the State Highway System to ensure the safety of the traveling public. In addition, special in-depth type inspections may be required for many bridges, at frequencies specified in the National Bridge Inspection Standards (NBIS). INDOT is also required by state regulations to inspect

bridges in Indiana state institutions. Indiana counties are required to ensure that all bridges in the county that carry public roads are inspected, and meet all federal and state regulations, in order to be eligible to use federal bridge funds.

INDOT uses four (4) categories to classify bridge/structure inspections for INDOT and local (county bridges/structures). All inspections must be conducted in a professional manner and using all appropriate and proper safety procedures.

14.1 Regular Bridge Inspections

Definition

A regular bridge inspection is the inspection of any bridge that does not meet the definition of a Complex Bridge (as defined in Section 14.2.) or a Small Structure (as defined in Section 14.4). A bridge inspection can include routine, fracture critical, special detail, damage, clearance measurement, scour, seismic and miscellaneous inspections, or any combination of these.

Requirements

The consultant requesting prequalification in regular bridge inspections shall:

1. Have at least two (2) NBIS qualified bridge inspection team leaders, one of which must be a Registered Professional Engineer, Licensed in the State of Indiana. All team leaders must be on INDOT's list of active team leaders in Indiana.

2. Have team leaders that have attended and completed the NHI - 80 hour Safety Inspection of In-Service Bridges course at least once in the past ten (10) years, and must be on site and actively participating in all inspection activities.

3. Have team leaders that have had responsibility for the inspection, data integrity, and report preparation for at least one (1) Indiana county wide inspection contract, or two (2) separate bridge inspection projects, in the last three years.

Submittal Requirements

Provide a resumé and two (2) examples of a Bridge Inspection Report supervised by each team leader. The reports need to be signed by the team leaders to be considered.

The resumé should include the following information:

1. Number of years of bridge inspection experience and for which firm or agency they worked for at the time

2. Training courses attended (include course name, place, and dates attended)

3. Experience with various types of non-destructive testing methods

4. A representative listing of bridges inspected in the last three (3) years, including:

    a. State, county, route, district and owner

    b. Structure type

    c. Type of inspection

    d. Size of inspection team

    e. Access equipment and testing used

    f. Bridge length, maximum span length and number of spans

14.2 Complex Bridge Inspections

Definition:

A complex bridge is defined in the Federal Bridge Inspection Regulations as a suspension bridge, movable bridge, cable stayed bridge or a bridge with unusual characteristics as identified by a State's Bridge Inspection Program Manager.

A complex bridge is a bridge that because of its size or complexity would require a significantly greater inspection effort than could be accomplished on a normal routine, fracture critical or special detail inspections. These inspections require greater engineering knowledge and/or expertise to accurately and fully determine the condition of the various bridge elements.

Complex bridges include:

1. Suspension bridges

2. Movable bridges

3. Cable stayed bridges

4. Post-tensioned bridges, or ones with post-tensioned elements *

5. Bridges with pin and hanger connections

6. Open spandrel arch bridges

7. Bridges with steel box girders/pier caps, etc. *

8. Bridges with curved steel beam/girders

9. Major border crossing bridges over the Ohio River and Wabash River

10. Steel trusses that:

    a. Have four (4) or more main span steel thru truss spans

    b. Have pin and eyebar connections

    c. Have unique details or design that require more than a normal fracture critical or special detail inspection

11. Miscellaneous bridges, defined on a case-by-case basis, and approved by INDOT's Bridge Inspection Program Manager and which may consider:

    a. Bridge length

    b. Bridge width

    c. Number of spans

    d. Height above the ground or water

    e. Large traffic volume

* Confined Space Inspection Procedures may be a requirement.

Requirements:

A complex bridge inspection may include all or part of the types of inspections covered by a regular inspection (based on the inspection plan of action for the bridge), in addition to its complex part. For INDOT bridges, routine inspections will still be conducted by INDOT inspectors in addition to any complex type inspection that may be conducted by others.

The consultant requesting prequalification in complex bridge inspections shall:

1. Have at least two (2) NBIS qualified bridge inspection team leaders, one of which must be a Registered Professional Engineer, licensed in the State of Indiana. All team leaders must be on INDOT's list of active team leaders.

2. Have team leaders that have attended and completed the NHI - 80 hour Safety Inspection of In-Service Bridges course at least once in the past ten (10) years and must be on site and actively participating in all inspection activities

3. Have a team leader that has had responsibility for the inspection, data integrity and report preparation for at least one (1) Indiana county wide inspection contract or two (2) separate bridge inspection projects in the last three years

4. Have a Registered Professional Engineer licensed in the State of Indiana who is a team leader on site during all inspection operations. This engineer must also have completed the 3.5 day NHI course Fracture Critical Inspection Techniques for Steel Bridges, within the last five years. Other inspection teams with non-engineer team leaders, can participate in a complex bridge inspection, but the engineer team leader has overall responsibility.

Submittal Requirements:

Refer to the submittal requirements for Regular Bridge Inspections (Section 14.1).

14.3 Underwater/In-water Bridge Inspections

Definition

INDOT requires that condition inspections be conducted on submerged elements of bridges, or their in-water collision protection devices, in accordance with the National Bridge Inspection Standards (NBIS), the Underwater Bridge Inspection Manual by the FHWA and INDOT requirements, including bridge elements where:

1. The water depth around the bridge element is normally 3-feet deep or more throughout the entire year

2. The water is polluted with effluents which can cause accelerated deterioration of steel or concrete, or can be harmful to an inspector not properly protected

3. The current of the waterway is too fast for inspectors to safely enter into the water on routine inspections to assess the condition of the elements underwater

4. The channel bottom condition is such that an inspector on routine inspections would sink a foot or more into the bottom material and cause an unsafe working condition

Inspections shall be a Level-1 Inspection unless findings require that a higher level of inspection is required to accurately assess a bridge elements condition.

Requirements

The consultant requesting prequalification in underwater/in-water bridge inspections shall have full time staff that meets the following requirements:

1. Has at least one (1) NBIS qualified bridge inspection team leader, that is a Registered Professional Engineer, licensed in the State of Indiana that meets the following requirements:

a. Is a certified diver, and has a working knowledge and understanding of OSHA 29 CFR 1910 (subpart T and Y), USGS 46 CFR 197.200, and FHWA Report No. DP-80-1 and decompression limits per the U.S. Navy Manual

b. Has experience in underwater and in-water bridge inspections

c. Has experience in stream bed profiles and cross-sections

d. Has experience in underwater non-destructive testing techniques

e. Shall be on site for all inspection activities and actively participating in at least 50% of all in-water work

f. Has had responsibility for the inspection, data integrity and report preparation for at least two (2) separate bridge inspection projects in the last three years

2. Has a dive inspection team of at least three (3) people, one of which is the team leader, (described above in item #1), and all are dive certified, and have a working knowledge and understanding of OSHA 29 CFR 1910 (subpart T and Y), USGS 46 CFR 197.200, and FHWA Report No. DP-80-1 and decompression limits per the U.S. Navy Manual. All team members shall have the training and experience to perform assigned task in a safe and healthful manner.

3. All personnel involved with an underwater or in-water inspection shall be included in the prequalification request. No individual shall be substituted on a dive team without the written authorization of INDOT.

Submittal Requirements

1. Number of years of bridge inspection experience and for which firm or agency they worked for at the time

2. Number of years of underwater bridge inspection experience and for which firm or agency they worked for at the time

3. Bridge training courses attended (include course name, place, and dates attended)

4. Dive training courses attended (include name of program, certificate number, and date)

5. List last five (5) dive dates

6. Experience with various underwater non-destructive testing techniques

7. A representative listing of bridges inspected in the last three (3) years, including:

a. State, county, route, district and owner

b. Structure type

c. Type of inspection

d. Size of inspection team

e. Special equipment used or testing done

f. Bridge length, maximum span length, number of spans, number of substructure units in the water, depth of water, flow velocity, clarity of water, etc.

14.4 Small Structure and Miscellaneous Structure Inspections

Definition

A small structure is any structure that ranges in length (clear span - parallel to the centerline of a roadway) from 4.0 feet to 20.0 feet long. If the length is greater than 20.0 feet, the structure is considered a bridge. Miscellaneous structures shall be left undefined at this time.

Requirements

The consultant requesting prequalification in small structure bridge inspections shall:

1. Have at least one NBIS qualified bridge inspection team leader.
   The team leader must be on INDOT's list of active team leaders

2. Have a team leader that has attended and completed the NHI - 80 hour Safety Inspection of In-Service Bridges course at least once in the past ten (10) years, and must be on site and actively participating in all inspection activities

3. Have a team leader that has had responsibility for the inspection, data integrity and report preparation for at least one (1) Indiana county small structure or bridge inspection contract, or one (1) separate small structure or bridge inspection project in the last three years

4. A team leader present and actively participating on all inspections

5. Have an inspection team of at least two (2) people, one of which is the team leader

6. Demonstrate the ability to inspect in low clearance and confined areas in a cost effective manner

Submittal Requirements

Refer to the submittal requirements for Regular Bridge Inspections (Section 14.1).

14.5 Bridge Load Capacity Rating and Other Bridge Analysis/Testing

Definition

Federal Bridge Inspection Regulations require that a Bridge Load Capacity Rating be performed for each bridge carrying highway traffic. A number of rating vehicles and rating methods have been identified by the FHWA and INDOT as being required, in order to meet federal regulations. Since July 2004, INDOT has required that INDOT bridges be load rated in the design stage, as well as after placed in service. INDOT is currently using the AASHTO load rating program called VIRTIS to rate INDOT bridges. Since this load rating program cannot rate all types of bridges, other load rating methods can be used when appropriate to get an accurate and realistic load capacity rating.

Other analysis such as fatigue and fracture analysis, or actual bridge load test, etc. shall be left undefined at this time.

Requirements

The consultant requesting prequalification in load capacity ratings shall:

1. Have at least one Registered Professional Engineer, licensed in the State of Indiana, qualified to oversee, review and certify all load capacity ratings performed by that firm

2. Have on staff at least one engineer that has demonstrated knowledge of and the ability to use the VIRTIS load rating program for the load rating of INDOT bridges

3. Have a load capacity rating program that produces all load rating results required by the federal regulations and INDOT, and values that are compatible to the values calculated by the VIRTIS load rating program, when working for county and local government bridge owners. All calculations must be performed and reviewed by an engineer.

Submittal Requirements

Provide a resumé and examples of load capacity ratings conducted by the engineer in charge of the load ratings, and all other engineers that will assist with load capacity ratings. The reports need to be signed by the engineers to be considered.

The resumé should include the following information:

1. Number of years of bridge load capacity rating experience and when, types of bridges rated, rating programs used and for what firm those ratings were performed

2. Training courses attended (include course name, place, and dates attended)

3. A representative listing of bridges Load Rated in the last three (3) years, including:

a. State, county, route, district and owner

b. Structure type

c. Type of rating – working stress, load factor, LRFD, hand calculations, etc.

d. Type of calculations – flexure, shear, serviceability, etc.

e. Rating program